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# CACTUS AND SUCCULENT JOURNAL

**Of the Cactus And Succulent Society Of America**

Vol. XXIII MAR.-APR., 1951 No. 2

FIG. 18. G. W. Reynolds, author of "Aloes of South Africa" (see page 55).

**CACTUS AND SUCCULENT JOURNAL**

Published and Owned by the Cactus and Succulent Society of America, Inc., Box 101, Pasadena 16, California. A magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. North and South America $3.00 per year; foreign $3.50 by international money order. Mail application to SCOTT HASELTON, Editor, Box 101, Pasadena 16, Calif. *Editorial Staff:* THE ENTIRE SOCIETY. Entered as Second Class Matter at Pasadena, Calif., under act of March 3, 1879. Published bi-monthly. We reserve the right to accept or reject advertising or articles sent to this JOURNAL.

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## CONVENTION NEWS

Our 1951 Convention will be held in the Lakewood District on the western edge of Denver from July 10th to 12th. The morning of the tenth will be spent in registering and renewing acquaintances. Afternoon and evening will be devoted to sessions featuring kodachrome pictures and addresses. The morning of the eleventh will be devoted to round table group discussions and an appropriate address. The afternoon will be free for recreation and sight seeing. The evening amongst other things will feature a kodachrome reminiscence hour by Lad Cutak and the hat contest. The morning and early afternoon of the twelft will be devoted to round table discussions and addresses. Late in the afternoon we will move to the Pueblo beside the great Red Rocks Ampitheatre for the crowning of the King and Queen, our initiation ceremony for the new members of the Ancient Order of Cactus Nuts, a buffalo dinner and our final evening session.

The 13th and 14th will be devoted to a field trip into the Colorado cactus country. On the first day, stops will be made at suitable locations en route to our lodging place at Canon City. The second day will be spent in the mountain country to the south of Canon City. Members of the Denver Cactus Society will be our guides and they know just where the interesting things are to be found. They have spent two years in scouting and planning for this convention. You may have met hospitable folks but you will not know what western hospitality really is until you have spent a few days with these fine folks.

There will be an innovation in that the business sessions of the convention will be conducted in separate sessions by official delegates from each Affiliated Society in good standing. These delegates should be selected as soon as possible.

Our lodging places in Denver will be in large modern motels near to our meeting place. An information sheet giving full information concerning registration, reservations for lodgings and meals and an outline of the program will be mailed to all members in the Continental United States. Watch for it and make your reservations promptly so that our hosts can properly plan. In case you live outside of the United States or for any reason do not receive your copy by the first of June, write to our Convention Secretary, Miss Muriel Colburn, 1101 E. Dartmouth Avenue, Englewood, Colorado.

Remember Denver is the gateway to one of the greatest vacation lands in our country. The Denver Convention and Visitors Bureau will be pleased to send you literature about any of these vacation spots that you are interested in. Drop them a line now.

Spend a Tip Top Vacation with us in the Roof Garden of America. Fine climate. Congenial companions. Beautiful kodachrome pictures. A fascinating hobby. What more can you ask?

HOWARD E. GATES, *Convention Chairman.*

## WILLIAM HERTRICH HONORED

BOSTON, January 24, 1951—Arno H. Nehrling, Executive Secretary of the Massachusetts Horticultural Society, America's largest, announced today, the Society's medals for 1950—the most coveted horticultural awards in America.

The George Robert White Medal of Honor was awarded to William Hertrich, Curator Emeritus of the Huntington Botanical Gardens of San Marino, California, in recognition of his unusual ability as a landscape architect and his devotion as superintendent of San Marino Ranch. It was here that Mr. Hertrich developed the amazingly beautiful private estate that Mr. H. E. Huntington on his death in 1927 left to the enjoyment and the education of the public. Mr. Hertrich presided as Curator for twenty years until his retirement in 1947. The Huntington Botanical Gardens are a monument to Mr. Hertrich's vision, skill and horticultural knowledge. Few men have served their employers with the devotion and zealous spirit manifested by the recipient of this award. The George Robert White Medal was first bestowed upon the late Charles Sprague Sargent, Director of the Arnold Arboretum. For forty years it has been a signal honor and has been presented annually to distinguished horticulturists in various parts of the world.

FIG. 19. *Talinum guadalupense* with thick, gnarled, sausage-shaped stems seemed to grow out of the lava itself.

## THE GIANT TALINUM

*Talinum guadalupense* Dudley

*By* GEORGE LINDSAY

*Photos by author*

Guadalupe Island is the upper four thousand feet of a large volcanic mountain which rises from ocean depths some 250 miles south of San Diego. The Mexican island is truly oceanic, never having had a land connection, and is the home of a number of interesting endemic plants.

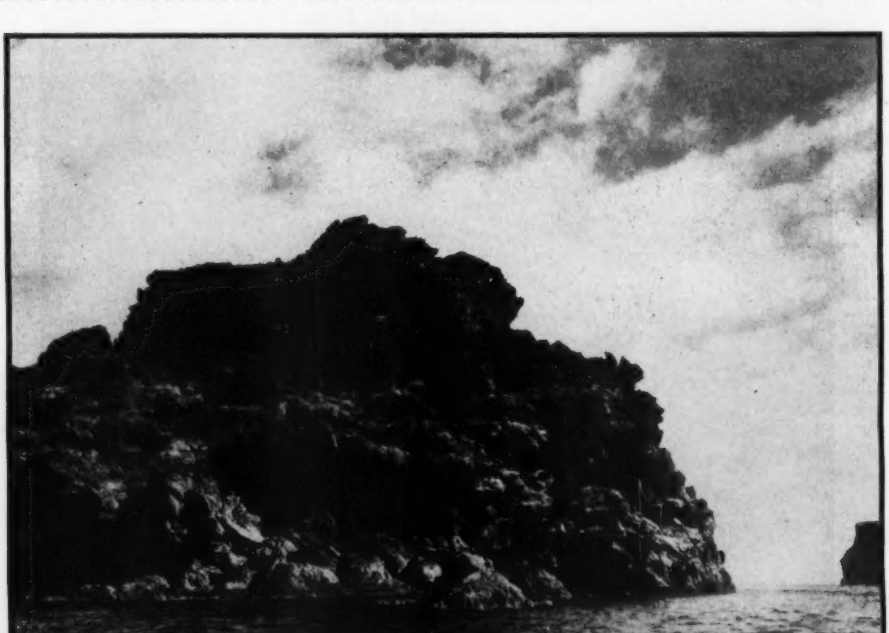

FIG. 20. The rough, black, lava rock, located just off the southwest corner of Guadalupe Island, where *Talinum guadalupense* was rediscovered in 1948.

The most curious of these is a strange succulent, *Talinum guadalupense.*

Reid Moran and I visited Guadalupe Island in the spring of 1948, in order to make plant collections for comparison with the floras of the California Channel Islands and the coast of Baja California. On April 11 we were anchored in a protected cove at the southwest corner of Guadalupe, and while rowing ashore decided to investigate a barren black volcanic rock. Approaching the rock we noticed some gray plants clinging in the crevices, so we soon found a ledge onto which we could pull the skiff, and scrambled up the lava cliffs to where the plants were growing. They were unlike anything either of us had seen, but appeared to be some strange crassulaceous thing. Reid, who is particularly interested in that family, could only say "they are wierd, wierd!"

The plants were mostly leafless, with gnarled, silver-gray sausage-shaped stems. Some were in the form of a few, connected globules, while others were much branched bushes two feet high. The tips of some of the branches and, in favorable locations all of the branches, bore tufts of thick, fleshy, blue-green leaves, which were tipped with a thin, red line. Fortunately some of the plants were in flower, and the large, rose-colored blossoms, produced on long spikes above the plant, indicated that they didn't belong in the Crassulaceae. The question of what they were was answered when we returned to the boat and consulted Alice Eastwood's list of the plants recorded from Guadalupe (Proc. Cal. Acad. Sci. 18:393-484, 1929), which included, under Portulacaceae, a description of *Talinum guadalupense* Dudley, which generally met the description of the plants we had found.

Guadalupe Island has been botanized several times, the first collections having been made by Edward Palmer in 1875, followed by those of Greene in 1885, and Franceschi in 1892 and 1893. It is surprising, then, to find that *Talinum guadalupense* was not discovered until July, 1897, when it was collected by Stanford Professors Thoburn, Green and Wing, who were then engaged in fur seal investigations. Probably this fact indicates that *T. guadalupense* has never been common on the island. The type specimen, on deposit at Dudley Herbarium of Stanford University, is a small plant with two flowering panicles, and a note which says "Radish in valley south end of Id." Professor Dudley, who described the plant, quite under-

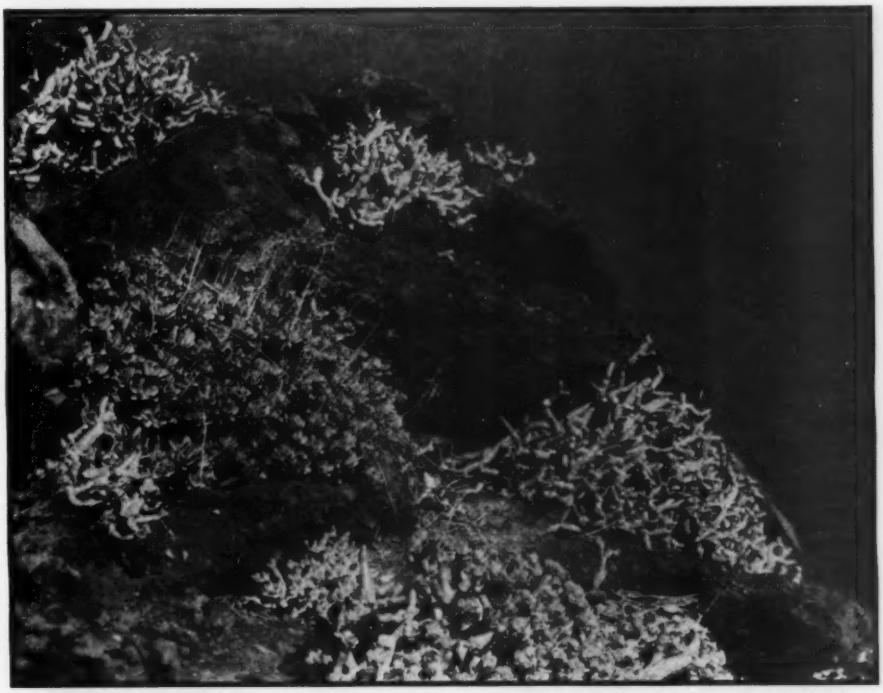

FIG. 21. Colony of *Talinum guadalupense* on the lava rock just off the southwest corner of Guadalupe Island. The silver-gray stems contrasted pleasantly with the background of black lava and blue water. FIG. 22 (below). Most of the plants had leafless stems, but even these bore a panicle or two of flowers.

FIG. 23. The flowers are rose-colored, with a delicate daintiness unusual for a succulent plant.

standably confused the dried, thickened stem with the rhizome, which is rather characteristic of the genus *Talinum*. The roots of *T. guadalupense*, however, are fibrous, and the thickened stems are above ground.

*Talinum guadalupense* has been collected few times. In March, 1930, Steve Glassell and Bill Pemberton found a single specimen of the plant when they stopped at Guadalupe Island on a yachting trip. The plant was returned as a curiosity, and given to Edward A. Howard, who passed it on to Eric Walther, botanist of the Golden Gate Park in San Francisco. The plant grew and flowered, and Walther published photographs and a brief description in this journal, (Cact. and Succ. Journ. 3:152, 1932; 9:41, 1937). There are no records of other collections having been made before ours, though

FIG. 24. Plants in the more favorable locations bore rosettes of thick, blue-green leaves at the tip of every branch.

several parties had visited the island and done botanical collecting during the intervening years.

At the present time *T. guadalupense* is to be found in abundance on the black rock where we collected it, and where E. Yale Dawson, of the Hancock Foundation, collected it in December, 1949. It also is very common in the crater floor of Outer Islet, a little island which lies about two miles off the south end of Guadalupe. This floor is about two acres in extent, and supports a very dense population of *T. guadalupense,* mixed with *Coreopsis gigantea.* I recollected the species at both locations in January, 1950, while with the research ship "Orca," of the Sefton Foundation in San Diego, California.

*Talinum guadalupense* is an interesting plant in many respects. It grows well in cultivation, and its grotesque appearance, rarity, and very beautiful flowers make it a desirable horticultural species. It is the largest and most unusual of the Talinums, which are generally rather small herbs or shrubs, more or less succulent in nature. The genus and family are widely distributed throughout the New World.

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**NEW CACTUS BOOK**

"Growing and Enjoying Succulents" by Ladislaus Cutak. A new 25-page booklet published by the Missouri Botanical Garden as the December, 1950, number of the bulletin. It is a popular account of the cactus and succulent hobby, which gives information on the cultural practices which also points out the many uses to which these plants lend themselves. The contents include the following chapters: Growing from Seeds, Other Methods of Propagation, Grafting, Seasonal Care, Disease and Pest Controls, Indoor Collections, Desertariums, Dish and Button Gardening, Arrangements, Corsages, etc. The booklet is well illustrated with ten pages of plates, including 35 halftones. The bulletin sells for 25c and can be bought at the main gate office, or it can be procured through the mails. Only a limited number of copies have been printed, so if you desire a copy send for it immediately with your remittance to the

MISSOURI BOTANICAL GARDEN
2315 Tower Grove Ave.
ST. LOUIS 10, MO., U. S. A.

**CACTUS WORLD LOSES A FRIEND**

William A. Pirtle, co-owner with his brother Paul R. of the Pirtle Cactus Gardens, died at Grandview Hospital, February 27, age 59 years.

Son of the late J. R. Pirtle and Mrs. Pirtle, he was born in Kentucky and came to Texas in 1909. He had been in very poor health recently and had not been well since serving in World War I. The cactus world certainly lost a good friend and student.

CHAS. M. FITZPATRICK
Edinburg, Texas.

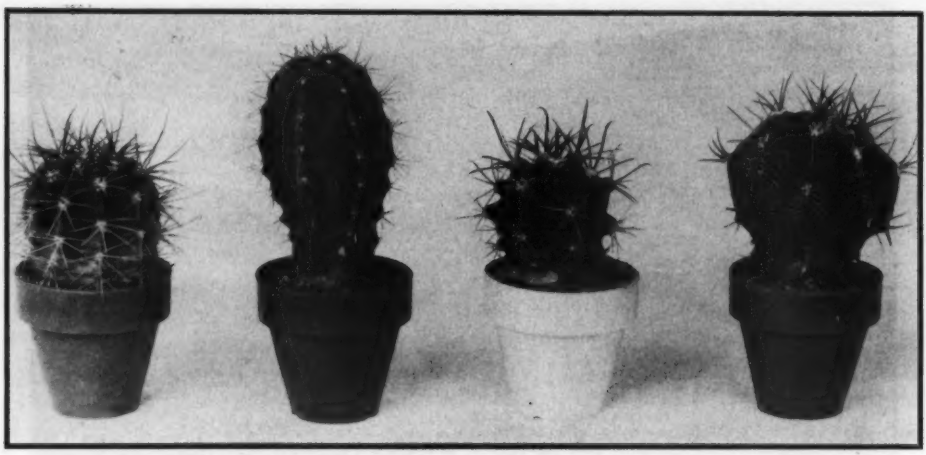


FIG. 25. Cactus seedlings in two-inch plastic pots.

## THE DEALER'S CORNER

How to market a small single plant in an attractive container has always been a problem. The usual red clay pot is far from the ideal container. Such pots are often poorly made, occasionally cracked and frequently stained with soil minerals or covered with green algae.

The new plastic pots promise to be an answer to the problem. They are paper thin with glossy bright colors that match the color scheme of milady's kitchen. Our business is the growing of plants in quantity for you to prepare for market. Nevertheless we have given plastic pots a thorough workout during the past year. We planted up a number with a wide assortment of plants, plunged them into flats of sand and grew them ever since to see what they would do. The pots did not crack, soften, fade or stain. After removing from the sand, all the pots need is wiping off with a damp cloth to shine them up and make them ready for the sales counter. There are proper drainage holes in the pots so the plants grew as well as they would in any container.

The pots are made in one and a quarter and two inch sizes with slightly larger sizes in novelty shapes. We understand larger sizes will be offered this year. The grower and shipper will be pleased to note that because of the thinness, more can be grown on a bench or packed to a carton and there will be less weight to pay freight on and no breakage of pots in transit. The cost of these pots is only a fraction of a cent more than the cost of red clay pots and the greatly increased saleability will more than offset this extra cost.

Our illustration shows from left to right *Echinopsis campylacantha, Lemaireocereus pruinosus, Ferocactus viscainensis* and *Astrophytum ornatum* that have been growing for eight months in two-inch plastic pots.

Several firms are offering plastic pots but ours came from the Union Products, 511 Lancaster St., Leominster, Mass.

HOWARD E. GATES.

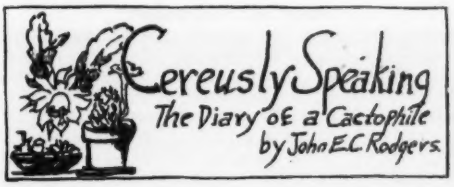
Visitors in the JOURNAL office last month were G. A. Gray from Oklahoma, H. E. Golisch from Harbor, Oregon, and Paul Hutchison, President of the Oakland club (Cactus and Succulent Society of California). We are glad to greet these out-of-town members who are always welcome to stop at 132 West Union Street, Pasadena. Members will be interested to know that Mr. Hutchison will soon visit the herbariums in the east and then goes to South America for several months on a collecting expedition.

George Lindsay of Stanford University plans to do the quarter of field work in Lower California next summer. Let us hope that he brings back more material for such outstanding articles as the one, "The Giant Talinum," in this issue of the JOURNAL.

### AFFILIATE NOTES

The Midwest Cactus and Succulent Society officers for the year 1950 were re-elected to serve in 1951:

President, Mr. John Rodgers; 1st Vice-Pres., Mr. G. E. Steward; 2nd Vice-Pres., Mr. E. J. Fish; Secretary-Treasurer, Mr. Wm. F. Weber, Box 392, Middlefield, Ohio. Meetings were at the homes of members during most of the months during the past year. On other occasions they met at the Cleveland Garden Center and the Cleveland City Greenhouse. Six new members were added during the past year, making the present membership 21. Mrs. Weber and I would be happy to meet you in Denver during the convention, but so far the trip is still in the dream stage—W. Weber.




To begin in January 1, 1951, and discuss the awakening of my collection seems like a big order, but that is what I plan to do, so here goes for the 10th year of "Cereusly Speaking, the Diary of a Cactophile."

First what plants should we expect to be starting new growth now: the answer is, of course, those Xerophytes that grow below the equator in South America, Australia and Africa—and that is what is happening. On December 21 the "sun went as far south" as it goes [to the tropic of Capricorn 23½° below the equator, crosses tip of Argentina, southern Paraguay, northern part of Chile, and extreme south part of Brazil) now on its way back to cross the equator March 21 and on June 21 to reach the 'Tropic' of Cancer 23½° north which is as far as it goes and so back south crossing the equator September 21, etc.]. On December 27, Buenos Aires had a heat wave with a high of 116°.

What plants are in the average collection that grow as native to this south of the equator region? The list includes the Parodias, Borzicactus, Malacocarpus, Rhipsalis, Epiphyllanthus, Rebutia, Lemaireocereus, Weberocereus, Aporocactus, Espostoa, Oreocereus, Nyctocereus, Heliocereus, Eriocereus, Cephalocereus, Notocactus, Disocactus, Chiapesia, Epiphyllum, Frailea, Neoporteria, Acanthocalycium, and Trichocereus. These are the cacti that are growing or starting growth in my collection. In the "other succulents" the Euphorbia, Haworthia, Crassula, Stapelias, Huernias, Aloes, Ceropegias, Pleiospilos, Urbinia, Dudleya, Kleinia, Glottiphyllum, Kalanchoe, and Cotyledons are growing.

I am successful with these "winter growing" plants because I try to keep them semi-dormant and until January. This I am not entirely able to do or even slow down because 50° [which I keep should be nearer 42° or even 30° theoretically] and even a weekly watering (tepid) awakens those that do not 'sleep too soundly" in their changed environment. Some of the cacti mentioned are not South American but grow as far north as Central Mexico.

Most of the plants named develop buds before they start active growth so it is of the utmost importance to keep the growth slowed down as much as possible. At present the Rhipsalis, Aporocactus, Epiphyllanthus, Schlumbergeras, Rebutias, Lepismium, Hatiora, some Mammillarias and Gymnocalycium are either in bloom during January and February or are budded ready to bloom. Euphorbias, Crassulas, Haworthias, Aloes, Glottiphyllum, Kalanchoe, Kleinia and Urbinias are blooming. The Parodias, Nyctocereus, Heliocereus, Eriocereus, Notocactus, Disocactus, Chiapasia, Epiphyllum (also Orchid Cacti) develop flowers after growth has started. Since the embryo buds are developed the preceding season anything that induces too rapid growth may abort them. In the case of the Epiphyllums and Orchid Cacti the buds often become stems with the typical five sided spiny ovary elements below the blade of the stem while the other types dry up or turn yellow and drop off.

I've found that the variable temperatures of the winters and the lack of sunshine we have here in the Great Lakes region are not conducive to the best flowering. I'm an experimenter with soils, heat, light (artificial), watering, fertilizers, pots, "pot-binding," and what have you. To be honest there is no foolproof method that I've discovered, so far, to get 90% of those of blooming-size to flower. The other 10% respond to most conditions which I use in my experiments.

Repotting should be done after flowering in most instances I've found, barring accidents of course. Fertilizing should be done during the early part of the growing season, especially to supplement the water solvent minerals and build up the reserve to form as well as nourish the flower buds. The use of chemicals though frowned upon by some authorities is still an absolute necessity while a plant has not reached its full size. This avoids the yearly repotting which often discourages the next year's flowering.

I've talked to Dutch and German growers of succulents. They use both natural and chemical fertilizers. "Well-aged" manures up to ½ of the soil in the batch is frequent. Pokon, a Dutch fertilizer, has a "16-21-27 analysis" while Vigero, an American preparation, has 5-12-4 (5% nitrogen—12% available phosphoric acid and 4% potash). This almost double our proportions they explain is not due to our better soils alone, but to their desire for quick, firm growth and fine color of leaf, stem and spine.

Most growers are agreed that it is not expedient to use fertilizers after the middle of July to allow the plants to get their new growth and let them "harden-up" before the shorter days and lessened sunshine along with fall rains which are prevalent in most localities.

In the winter as long as the plants show firm growth and good color I continue to give them a weekly heavy watering. The temperature is kept as low as possible which may get 40°-45° farthest away from my hard coal stove. Most of the succulents which need coolness to develop the "luscious" colors in the leaves are stored here. A light watering once a week is all that is needed to keep these in condition.

Winter watering to keep the roots from being damaged is absolutely necessary but too much may kill them also. Poor growing conditions in some plants may not show up for two seasons or more after the damage is done. If kept too dry and not enough light Epiphyllums show aerial roots and "stringy" growth. If kept too wet sunken spots appear and dry back at the soil level with the total loss of the plant. Nyctocereus, Selenicereus and Hylocereus are invariably hard to stop growing and start easily by too early watering. I start to water these heavily in March but even then most of them have continued some growth most of the winter. With all three of these the blooming time corresponds to the growth cycle. Too much early growth and too much heat blasts the buds. Feed these plenty as they are gross feeders. When fertilizing the other succulents the same procedure as for cacti holds true, water plants then put on fertilizer and water it in. The roots of the other succulents can stand more dryness and still recover than can most of the cacti but it is not advisable unless it has proved successful in the past.

Sunlight, an absolutely necessity to the health of the succulents, is the problem during December, January and February. According to the weather bureau it varies in the Great Lakes regions from 25 to 33%, in the middlewest from 35 to 50% and in the Atlantic district from 33 to 45%. But with this variation from the 75 to 87% and higher of the South and S. W. we still can raise fine plants and do.

By February and March and April the Mexican and

S. W. Mammillarias, Aporocactus, Echinocereus, Pachycereus, Ancistrocactus, Ariocarpus, Selenicereus, Weberocereus, most Opuntias, Wilmattea, Medicactus, Theleocactus, etc., have started growth, some buds appear and a few flower. The Echinopsis show buds as well as new growth. This genus has been in cultivation so long that I doubt if they know any season. Some grow all winter and others start in the spring. In this type of discussion the boundaries between growth and dormancy cannot be too closely drawn as so many things go into the circumstances which alter the cases. There is sure to be overlapping of both the cycles as well as the flowering cycle. However, I plan to attempt this. I have 17 years of my diary of the succulents day by day to refer to as well as an extensive library of American and European Xerophytic literature. If these fail me I can refer to the complete file of the Cactus and Succulent Journal of America from 1929 on.

If you like this let me know. However, I shall be delighted to get your letters for or against. Selah!

JOHN E. C. RODGERS
1229 8th Street, Lorain, Ohio.

**PROPOSED AMENDMENT**

The Committee appointed to study the possible revision of parts of the By-Laws of the Cactus and Succulent Society of America, Inc., recommends that the below listed revisions be made and for that purpose have prepared the following amendment:

ARTICLE III—Appointive Officers. Section No. 7 and No. 8. These two sections to be completely eliminated.

The Committee recommends that these two sections, dealing with Regional Vice-Presidents and their districts, be completely eliminated from the By-Laws of the Society, as they are no longer in use. This proposal to be acted upon at a special meeting of the Board to be held March 2nd, 1951. ETHEL RUSH, *Secretary.*

* * *

*B. F. K. (Blatter fur Kakteenforschung)*—Curt Backeberg. This bulletin of cactus research was published between 1934 and 1938 and contains 460 pages and 250 photos. Each cactus is described in English. Absolutely necessary for those studying classification. Unbound $4.90. ABBEY GARDEN PRESS

# NOTES ON HAWORTHIAS

*By* J. R. BROWN

In a recent issue of the Journal of South African Botany (XVI [1950] 1.) there is an interesting paper by G. G. Smith entitled, Some Transfers in the Genus Haworthia.

*Haworthia incurvula* Poelln. is transferred from the sect. *Muticae* to the sect. *Obtusatae*. I received this particular sp. some 17 years ago and I recall my inability to place it in the sect. *Muticae*. We now have a very great number of forms in the sects. *Muticae, Denticulatae, Planifoliae,* and *Obtusatae* of Berger and when this plant is compared with all these forms it seems to properly belong in the sect. *Obtusatae,* where G. G. Smith has now transferred it.

Another transfer which admits of no doubt, regardless of the origin of the plant, is the transfer of *Haworthia lisbonensis* Resende, from the sect. *Coarctatae* to the sect. *Rigidae.*

*Haworthia agavoides* Zantner & Poelln. is reduced to varietal status as, *H. sordida* var. *agavoides* (Zantner & Poelln.) G. G. Smith. Mention is made of the close similarity of the two plants; *H. agavoides* being more distinctly tuberculate than *H. sordida,* which is tuberculate-rugose. These plants are difficult to separate and there may be intermediate forms.

In another paper immediately following this and entitled, Some new species and varieties in the genus Haworthia, (loc. cit. 3) a most interesting transfer is recorded. This is the erection of the new sect. *Limifoliae* G. G. Smith and the transfer of *H. limifolia* and its varieties from the sect. *Margaritiferae,* where they never belonged, to this new sect. As mentioned by G. G. Smith, Marloth at the time he published *Haworthia limifolia,* stated that the characters of the plant might be sufficient to constitute a new sect., and this has now been carried out.

In this same place, *Haworthia ubomboensis* Verdoorn, which is so well figured in the Flowering Plants of South Africa XXI (1941) Pl. 818, has been reduced to varietal rank as, *H. limifolia* var. *ubomboensis* (Verdoorn) G. G. Smith. As this plant seems to grow in approximately the same general area as *H. limifolia,* it may well be only a smoother leaved form, although it does seem more or less distinct.

The transfer of *H. limifolia* from the sect. *Margaritiferae* calls attention to the many Haworthias which do not seem to properly belong in it, *H. limifolia* was a good example. For my own convenience in filing a mass of data and photos concerning Haworthias, I have for several years used many sects. tentatively, such as *Limifoliae, Tuberculatae, Attenuatae,* to mention some in the sect. *Margaritiferae* alone. The sect. *Margaritiferae* could well be reserved for *H. papillosa, H. margaritifera* and the many forms closely allied to them and which, more or less, have the characteristic flowers and stout peduncles of *H. margaritifera.*

In view of the great number of recently discovered Haworthias, it would seem advisable to increase the number of sections to take care of them in a more satisfactory manner, instead of placing them in one of the existing sections where they may doubtfully belong.

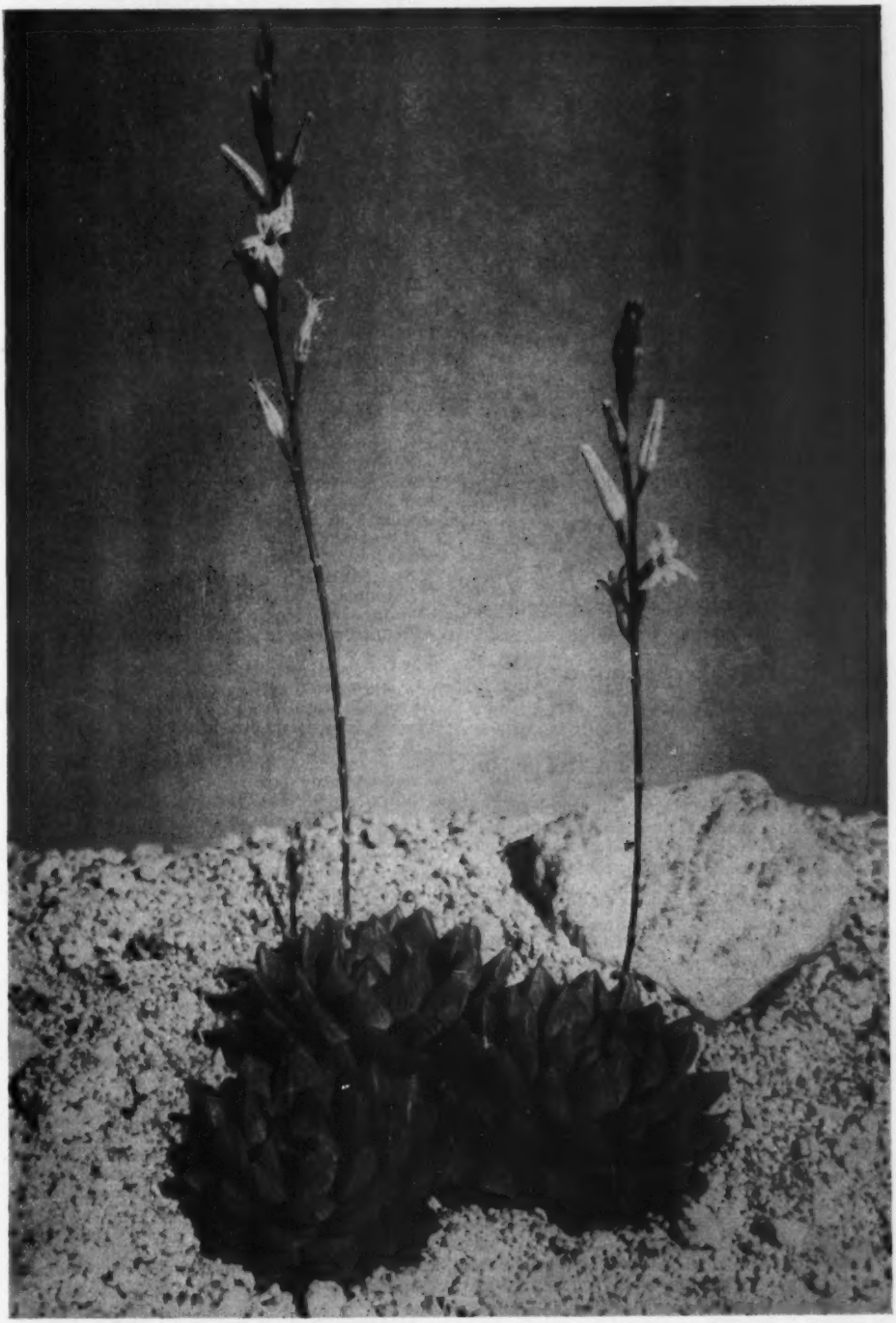


FIG. 26. *Haworthia incurvula* Poelln. nat. size.

### AFFILIATE NOTES

The Los Angeles Cactus and Succulent Society is maintaining a sustained interest in cacti and succulents, and is making steady growth in membership under the leadership of president Homer Rush. Eleven new members have joined in the past year. The Society is looking forward to a program which will assist its members to become more familiar with cacti and succulents and assist them in the development of their interest in plants.

Prospective new members are welcome to the meetings held the first Sunday of every month at the homes of various members. Information regarding these meetings will be supplied by Mr. Rush, at Plymouth 4-6957 or membership chairman Phyllis Dow, at Lomita 1138m.

The regular monthly meeting of the Society was held Sunday, February 4, at the home of Mrs. Dineen. Before the business meeting members inspected and discussed Mrs. Dineen's collection.

At the business session, arrangements were made to continue the botanical studies and future field trips were discussed. It was decided not to participate in the Los Angeles Hobby Show in early April.

Mr. John Akers gave a talk on *Opuntia vulgaris* variegata, *Crassula argenta* and *Bryophyllum scandens*. Door prizes of interesting species were awarded after which refreshments were served. The meeting closed with a showing of color slides and talk by Harry Johnson, Jr., of his expedition to Baja California.

L. I. Dow.

* * *

### CACTUS AND SUCCULENT SOCIETY OF CALIFORNIA, Inc.

#### Prospectus for 1951

*President:* P. C. Hutchison, 3017 Wheeler St., Berkeley 5, Calif. (Phone: Berkeley 7-1172J)

*Vice-President:* A. Irving, 2163 Alameda Ave., Alameda, Calif. (Phone: Lakehurst 2-0731)

*Secretary:* J. L. Hastings, 817 Curtis St., Berkeley, Calif. (Phone: Landscape 5-5540)

*Treasurer:* W. C. Andrews, 5161 Trask St., Oakland, Calif. (Phone: Kellogg 2-1146)

PURPOSES: To promote interest in the conservation and study of cacti and other succulents, and to encourage horticultural and scientific study of them.

MEETINGS: Monthly meetings are held the second Sunday of each month at 2:00 P.M. from November to June at the W. C. Andrews residence, 5161 Trask Ave., Oakland, California. Guest speakers on subjects of interest to the members are scheduled for these meetings and demonstrations include living plants, kodachrome slide projections and photographs. A library is maintained for the use of members, important new publications are added, and subscriptions to all English journals (and to several foreign language periodicals) are maintained. The summer months (July to October) are devoted to field meetings at the homes of outstanding collectors in northern California, and in addition to viewing the collections members hold a pot-luck picnic.

ACTIVITIES:

1. Participation annually in the California Spring Garden Show with the largest exhibits of both cacti and other succulent for any garden show in the world.
2. Support of the program of the Council of East Bay Garden Clubs.
3. Distribution to members of the Society and other citizens of such surplus material of succulent plants as is available at the University of California Botanical Garden at Berkeley.
4. Importation of rare plants not previously introduced to horticulture in this country.
5. Annual meeting in December with plants for members and guests and a Christmas dinner.

MEMBERSHIP: Open to all persons interested in cacti and/or other succulent plants; no sponsor is necessary. Nominal annual dues of $1.50 are payable December of each year.

#### Program for 1951

JANUARY: Speaker Mr. Robert Rodin of the Dept. of Botany, University of California. "A Botanical Journey through South Africa, Rhodesia and Transvaal" with kodachrome projections. The speaker will emphasize succulents and bizarre plant forms. Living plant demonstration.

FEBRUARY: Speaker Mr. Alex Hawkes of the Dept. of Botany, University of California. "Tropical Exotic Plants for the Succulent Grower" with kodachrome projections and living plant demonstration. New and unique plants suitable for growing with succulents will be discussed.

MARCH: Speaker Dr. Meredith Morgan, Sr., of Richmond, Calif. "Cristation in Cacti" and "Hybridization Experiments with South African Succulents." Living plant demonstration.

APRIL: Speaker Mr. Reid Moran of the Dept. of Botany, University of California. "The Crassulaceae" with kodachrome projections and living plant demonstration. Material to be discussed will include *Crassula, Adromischus, Cotyledon, Dudleya, Echeveria* and many of the less prominent members of the Crassula family.

MAY: Speaker Mr. A. Irving of Alameda, Calif. "Cultivation of Succulents from Seed." Living plant demonstration. Mr. Irving is a specialist on South African succulents, in particular Mesembs., Haworthia, and Crassula relatives.

JUNE: Speaker Mr. H. M. Butterfield of the College of Agriculture, University of California. "Aims and Accomplishments of Hybridization in Succulent Plants." Living plant demonstration.

JULY TO OCTOBER: Monthly field meetings at outstanding collections in northern and central California, —time and place to be arranged.

NOVEMBER: Speaker Mr. P. C. Hutchison, Botanical Garden, University of California. "South American Cacti and other Succulents" with kodachrome slides and living plant demonstration.

DECEMBER: Annual Christmas meeting, free plant distribution, and Christmas dinner. Election of officers and annual reports. Lecture, 15 minutes, "Rare Haworthias" by P. C. Hutchison. Living plant demonstration.

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The Research Department of the Epiphyllum Society of America* set up an experiment last year in which they hoped to determine the feasibility of rooting epiphyllum cuttings directly into the potting mixture. Various potting mixtures were secured from epiphyllum growers, also several older formulas were compounded and used. The cuttings used were all from Padre and after proper drying, were planted direct in the growing medium. Each can was marked in code and then distributed to several members to care for. Periodic checks are being made of the growth attained. It remains to be seen whether cuttings making the earliest growth, will, in the long run, prove to have any advantage over the slower starting ones. It is hoped to carry the experiment on to the flowering stage. Cuttings lost, in this experiment to date, are negligible.

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*Membership $2.00 per year. Martha Maxwell, Secretary, 500 Grove St., Glendale, California.

# SOME RESULTS OF TWENTY YEARS OF CACTUS RESEARCH[1]

By CURT BACKEBERG

## PART III

*An annotated list of my new genera, species, varieites and combinations*

NATIO 6. Trichocerei

SUBNATIO 1. Nyctotrichocerei

73. *Philippicereus* Backbg., 1942a, Cact. Jahrb. DKG.: 29, 75. Type: *Cereus castaneus* K. Sch. This genus is distinct from *Eulychnia* in several respects: the nearly campanulate flowers have a short, densely scaly, hairy tube; the ovary is tuberculate with numerous areoles, short (!) wool and slender brown spines (!); the fruit is nearly devoid (!) of bristles except near the top. The illustration of Britton & Rose (1920: 84) shows the difference between the flower of *Philippicereus* and that of *Eulychnia*.

*P. castaneum* (K. Sch.) Backbg., 1942a, Cact. Jahrb. DKG.: 29.

74. *Setiechinopsis* (Backbg.) Backbg., 1950f, Cact. & Succ. Journ. Am.: 153. Type: *Echinopsis mirabilis* Speg. Syn. *Echinopsis* subg. *Setiechinopsis* Backbg., 1938e, Blätt. f. Kakteenf., 1938-6. The genus is distinctive in the following characters: tube long, slender, with bristle-like, elongated scales; ovary sometimes with white bristle-spines in the axils of its scales; stamens short, not in two series; fruit clavate, nearly cylindrical, dry.

*S. mirabilis* (Speg.) Backbg., 1950f, Cact. & Succ. Journ. Am.: 153.

75. *Trichocereus* (Berg.) Ricc.

Subgenus 1. *Eutrichocereus* Backbg., 1938e, Blätt. f. Kakteenf., 1938-6.

Subgenus 2. *Medioeulychnia* Backbg., 1938e, Blätt. f. Kakteenf., 1938-6. Type: *Trichocereus litoralis* Johow. These are species of the South American west coast with flowers open for several days.

*Trichocereus auricolor* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 202, 412. This may belong with *Helianthocereus andalgalensis* (see there), although I was told the flowers are white.

*T. cephalomacrostibas* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 201, 412. Type locality: Pampa de Guerrero, east of Mollendo, Peru.

*T. deserticolus* (Werd.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 202.

*T. gladiatus* (Lem.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 202.

*T. knuthianus* Backbg., 1937, Sukkulenta: 42.

*T. santiaguensis* (Speg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 204.

*T. skottsbergii* Backbg., 1950b, Acta Horti Gotoburg.: 146.

*T. terscheckii* var. *montanus* Backbg., without Latin diagnosis, in Backeberg & Knuth, 1935, Kaktus-ABC: 205. As validating diagnosis: Differt habito minus ramoso, ramis erectis, crassioribus. Type locality: Northern Salta, Argentina, at about 2000 meters.

*T. uyupampensis* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 205, 412.

*T. vollianus* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 205, 412. This plant grows in the Cochabamba district of Bolivia.

*T. vollianus* var. *rubrispinus* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 206, 412.

*T. werdermannianus* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 206, 412. This giant, stiff-spined cereus has its type locality east of Tupiza, Bolivia, at about 3000 meters.

77. *Haageocereus* Backbg., 1934f, Blätt. f. Kakteenf., 1934-6. Type: *Binghamia pseudomelanostele* Werd. & Backbg. Syn. *Binghamia* Br. & R., genus confusum, in part; *Peruvocereus* Akers. This group is circumscribed to include only the rather slender, erect cerei of the Peruvian west coast and coastal ranges. The generic characters are: flowers funnelform, nocturnal, the tube and ovary not very hairy; fruit juicy, nearly round, thin-skinned, not very woolly. In some of the species the

hairs, which are produced in younger areoles and are caducous, are longer at the top, as sometimes also are the spines in older plants.

To explain briefly the nomenclatural problem surrounding *Binghamia, Haageocereus, Peruvocereus* and *Pseudoespostoa,* the following comments are in order. My rejection of *Binghamia* Br. & R. in 1934 being unknown to them, Setchell & Dawson, 1941, took up the cactus genus in connection with an algal genus *Binghamia* Farlow. They concluded that the algal genus had not been validly described and that *Binghamia* Br. & R. might be free for use in the Cactaceae. Nevertheless, as I have shown, it has to be rejected as a genus confusum (Int. Rules of Bot. Nom., 1935, Art. 64) because the characters were derived from two discordant elements which did not permit the authors to have an exact conception of their genus. The type of *Binghamia* Br. & R. was first published as *Cereus melanostele* Vaupel, which does not belong here, but to *Pseudoespostoa.* Britton & Rose clearly used an element of this species in formulating their description of it as the type of *Binghamia,* but it is also clear that they did not limit their description to characteristics of Vaupel's species, but included a second element which can be recognized as belonging now to my genus *Haageocereus.* The inadequacy of their concept of *Binghamia* becomes all the more evident when one notes that in 1923 they published an insertion in their earlier text in which they substituted the name *Binghamia multangularis* (Willdenow) Br. & R. for *B. melanostele* (Vaupel) Br. & R., and placed the latter in synonymy. The effect of this was to cause the genus to be based on a different type, but without clarification of its circumscription. Thus, except for a poor photograph of the plant supposed to be representative of Willdenow's *Cactus multangularis,* but dated 11 years after the original description of the species, *Binghamia* Br. & R. is based on a name "not sufficiently characterized for identification."

My solution of the problem has been to leave *Cactus multangularis* as a dubious name and to separate the other two mixed elements into *Pseudoespostoa,* with *Cereus melanostele* Vaupel as type, and *Haageocereus,* with *Cereus pseudomelanostele* Werd. & Backbg. as type.

Akers, 1947a, has further complicated the nomenclature by describing a genus *Peruvocereus,* none of whose characteristics differ from those of the type of *Haageocereus.* The confusion is magnified again when he revives *Cactus multangularis* Willdenow (Akers, 1950: 174). In recognizing this plant which probably is to be considered the type of *Binghamia* Br. & R., and in transferring the specific name to *Peruvocereus,* he not only violates the "Rules," but reduces (unintentionally) his own genus to synonymy under *Binghamia* Br. & R. Furthermore, he has described a number of species and varieties which cannot be maintained. Some of the species of *Haageocereus* are very polymorphic and it is likely that natural hybridization occurs in their areas. Akers, of course, was not the first one to see these plants in the neighborhood of Chosica, Peru, the recreation-area of Lima. Other collectors such as Ritter and Blossfeld did not recognize more true species than I did. It is particularly remarkable that Akers did not mention as occurring in that district any of the three true species of *Haageocereus* which I recognize, namely, *H. acrantha, H. chosicensis,* and *H. pseudomelanostele.*

*Haageocereus acranthus* (Vpl.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 207. This has the greenish-white flowers as described by Vaupel (1913) and again by Werdermann & Backeberg, in Backeberg, 1931. Syn. *Peruvocereus viridiflorus* Akers, 1947e.

*H. australis* Backbg., 1936n, Jahrb. DKG.: 104. Type locality: Tacna-Pampa, Peru.

*H. chosicensis* (Werd. & Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 207. Syn. *Cereus chosicensis* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 74. This is a polymorphic species. Its many variants should certainly not be separated into species, nor, except for a few dominant ones, into distinct varieties. I have tried below to give an accurate synonymy according to my observations in nature and of cultivated material. Sometimes seeds germinated from a single fruit produce plants showing wide differences in spine color and length.

*H. chosicensis* var. *chosicensis.* This variety which includes the type of the species is

a yellow spined plant (Backeberg, 1932, Der Kakteen-Fr.: 9). The flowers vary from whitish to red. Syn. *Peruvocereus chrysacanthus* Akers, 1949.

*H. chosicensis* var. *albispinus* (Akers) comb. nov. Syn. *H. chosicensis* var. *albispinus* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 207, without Latin diagnosis; *Peruvocereus albispinus* Akers, 1948a, including var. *floribundus* and var. *roseospinus; P. salmonoides* Akers, 1947c; *P. albicephalus* Akers, 1947d, including var. *armatus; P. albisetatus* Akers, 1948b, including var. *robustus.*

*H. chosicensis* var. *rubrospinus* (Akers) comb. nov. Syn. *Peruvocereus rubrospinus* Akers, 1947d; *Haageocereus chosicensis* var. *rubrispinus* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 207, without Latin diagnosis.

*H. decumbens* (Vpl.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 207.

*H. decumbens* var. *spinosior* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 208, without Latin diagnosis. As validating diagnosis: Differt aculeis centralibus ad 40 cm. longis.

*H. humifusus* (Werd. & Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 208. Syn. *Cereus versicolor* var. *humifusus* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 81. This is a plant of more slender growth than *H. versicolor,* paler in color, less densely spiny and with longer centrals.

*H. laredensis* (Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 208, 412. Syn. *Cereus pseudomelanostele* var. *laredensis* Backbg., 1933f, Der Kakteen-Fr.: 54. This is an intermediate plant between *Haageocereus pseudomelanostele* and *H. pacalaensis,* being more slender than the latter, and more densely spiny than the former.

*H. olowinskianus* Backbg., 1937e, Blätt. f. Kakteenf., 1937-5. Found near the sea south of Lima and observed only in a very small area. It has a heavy armament of stiff, reddish spines.

*H. pacalaensis* (Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 209, 412. Syn. *Cereus* (*Haageocereus*) *tapalcalaensis* Backbg., 1933f, Der Kakteen-Fr.: 54. First mentioned in Backeberg, 1933e, Der Kakteen-Fr.: 49, as *C. tapacalaensis.* Because of a serious error in the spelling of the specific name, the spelling was corrected in 1935. This north Peruvian species with pale golden yellow spines is the stoutest one of the genus.

*H. platinospinus* (Werd. & Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 209. Syn. *Cereus platinospinus* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 76. A creeping plant of grey-green color and long whitish spines, found on the Arequipa pampa in southern Peru.

*H. pseudomelanostele* (Werd. & Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 209. Syn. *Cereus pseudomelanostele* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 74.

*H. pseudomelanostele* var. *pseudomelanostele.* The variety which includes the type has long yellow central spines and hairs of medium length in the upper areoles. Syn. *Peruvocereus clavatus* Akers, 1948.

*H. pseudomelanostele* var. *setosus* (Akers) comb. nov. Syn. *Peruvocereus setosus* Akers, 1947a.

*H. pseudomelanostele* var. *longicoma* (Akers) comb. nov. Syn. *Peruvocereus setosus* var. *longicoma* Akers, 1947b.

*H. versicolor* (Werd. & Backbg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 209. Syn. *Cereus versicolor* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 81. *Haageocereus talarensis* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 5.

*H. versicolor* var. *atroferrugineus* nomen nudum, in Backeberg, 1937m. 10 Jahre Kakteenf. (catalog): 5.

*H. versicolor* var. *aureispinus* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 210, without Latin diagnosis. As validating diagnosis: Differt aculeis flavis, unicoloribus.

*H. versicolor* var. *fuscus* Backbg., 1942, Fedde Rep.: 62. Found near Salitrales, Peru.

*H. versicolor* var. *lasiacanthus* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 81. A plant with softer spines and almost no visible centrals.

*H. versicolor* var. *spinosior* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 5.

*H. versicolor* var. *xanthacanthus* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 81.

78. *Roseocereus* Backbg., 1938e, Blätt. f. Kakteenf., 1938-6. Type: *Cereus tephracanthus* Lab. Syn. *Roseocereus* Backbg. nomen nudum, as subgenus of *Eriocereus* in Backeberg & Knuth, 1935, Kaktus-ABC: 179. These are rather tall, bushy, leaning cerei with large funnelform, nocturnal flowers, nearly globular, strongly tubercled ovaries with triangular drying scales, rather large, strongly tubercled fruits with triangular red scales, and nearly dull, apically rugose seeds unlike those of Bolvian *Trichocereus* species.

*R. tephracanthus* (Lab.) Backbg., 1938e, Blätt. f. Kakteenf., 1938-6. (Original spelling was *Cereus tetracanthus*.)

79. *Weberbauerocereus* Backbg., 1942a, Cact. Jahrb. DKG.: 31, 75. Type: *Cereus fascicularis* Meyen.

These plants are found in numbers only near Arequipa in southern Peru, although they also occur at about 2000 m. from that vicinity to adjacent northern Chile. The following are some of the outstanding characteristics: branches in young plants densely spiny, later with many long, very sharp spines; flowers with slightly s-curved tube, the perianth-segments rather short, not widely opening; scales numerous, provided with scant wool; fruits resembling more the fruits of *Cleistocactus* than those of *Trichocereus* in that they are round and rather small, with a little short wool; seeds shining.

This plant cannot be placed with *Trichocereus* Br. & R. because of differences not only in flower, but in fruit and habit characters. It seems to be one of many relics of the South American west coast, with a rather limited area.

*W. fascicularis* (Meyen) Backbg., 1942a, Cact. Jahrb. DKG.: 31.

*W. fascicularis* var. *albispinus* nomen nudum, in Backeberg, 1937m,10 Jahre Kakteenf. (catalog): 12.

80. *Echinopsis smrziana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 219, 412.

SUBNATIO 2. Heliotrichocerei

81. *Helianthocereus* Backbg., 1949l, Cact. & Succ. Journ. Gr. Brit.: 53. Type: *Trichocereus poco* Backbg. Syn. *Trichocereus* subg. *Neotrichocereus* Backbg., 1942a, Cact. Jahrb. DKG.: 30, 75.

These cerei have always been a source of confusion because they can be regarded neither as *Trichocereus* nor *Lobivia*. They are diurnal, with flowers smaller than those of *Trichocereus* but stouter than those of Lobivia. This diurnal branch of the *Trichocerei* approaches *Lobivia* by its subgenus 2, and also in some respects the massive, globular forms such as *Soehrensia* with their rather stout, nearly apical flowers.

Subgenus 1. *Euhelianthocereus* Backbg., 1950f, Cact. & Succ. Journ. Am.: 153.

Type: As for the genus.

*Helianthocereus bertramianus* (Backbg.) Backbg., 1949l, Cact. & Succ. Journ. Gr. Brit.: 53. Syn. *Trichocereus bertramianus* Backbg., 1935f, Blätt. f. Kakteenf., 1935-6; Backeberg & Knuth, 1935, Kaktus-ABC: 200, 412. This is a white flowering species.

*H. poco* (Backbg.) Backbg., 1949l, Cact. & Succ. Journ. Gr. Brit.: 53. Syn. *Trichocereus poco* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 204, 412. This is a red flowering species.

Subgenus 2. *Neohelianthocereus* Backbg., 1950f, Cact. & Succ. Jour. Am.: 153.

Type: *Cereus huascha* Weber.

*H. andalgalensis* (Weber) comb. nov. Syn. *Trichocereus auricolor* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 200, 412.

*H. huascha* (Weber) comb. nov.

83. *Pseudolobivia* Backbg., 1942a, Cact. Jahrb. DKG.: 31, 76. Type: *Echinopsis ancistrophora* Speg. Syn. *Echinopsis* subgenus *Pseudolobivia* Backbg., 1934t, Der Kakteen-Fr.: 61; *Lobiviopsis* nomen nudum, in a list by Frič, 1934.

The following features are characteristic of this genus and mark it as the most reduced stage within the Trichocerei: bodies globular to strongly depressed, but very old parts sometimes elongated; ribs mostly broken into tubercles; flowers diurnal, with tubes short (as in *Lobivia*) to slender and longer (as in *Echinopsis*); fruits pyriform or oblong.

*P. ancistrophora* (Speg.) Backbg., 1942a, Cact. Jahrb. DKG.: 31.

*P. aurea* (Br. & R.) Backbg., comb. nov. Syn. *Lobivia aurea* (Br. & R.) Backbg., 1934y, Der Kakteen-Fr.: 86; in Backeberg & Knuth, 1935, Kaktus-ABC: 244. *Lobivia aurea* var. *grandiflora* Backbg., without Latin diagnosis, in Backeberg & Knuth, 1935, Kaktus-ABC: 244. *Lobivia aurea* var. *robustior* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 244, without Latin diagnosis.

*P. aurea* var. *elegans* (Backbg.) comb. nov. Syn. *Lobivia aurea* var, *elegans* Backbg., 1934y, Der Kakteen-Fr.: 86.

*P. ferox* (Br. & R.) Backbg., 1942, Fedde Rep.: 65. Syn. *Echinopsis ferox* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 220.

*P. hamatacantha* (Backbg.) Backbg., 1942, Fedde Rep.: 65. Syn. *Echinopsis hamatacantha* nomen nudum, in Backeberg, 1933hh, Kaktusář: 76; described without Latin diagnosis in Backeberg & Knuth, 1935, Kaktus-ABC: 220-221. As validating diagnosis: differt aculeis plerumque solum curvatis (non hamatis); floribus ad 20 cm. longis.

*P. kratochviliana* (Backbg.) Backbg., 1942, Fedde Rep.: 65. Syn. *Echinopsis kratochviliana* Backbg., 1934r, Kaktusář: 66-67. *Echinopsis hamatispina* Werdermann, 1934, Kakteenkunde: 141-142.

*P. leucorhodantha* (Backbg.) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64. Syn. *Echinopsis leucorhodantha* Backbg., 1934r, Kaktusář: 63-64.

*P. lobivioides* (Backbg.) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64. Syn. *Echinopsis lobivioides* Backbg., 1934r, Kaktusář: 64-65.

*P. longispina* (Br. & R.) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64. Syn. *Echinopsis longispina* (Br. & R.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 221. *Pseudolobivia ducis-paulii* (Frič) Krainz.

*P. nigra* (Backbg.) Backbg., 1942, Fedde Rep.: 65. Syn. *Echinopsis nigra* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 221. The "*Pseudolobivia ducis-paulii* with black spines" of Schütz, 1948: 30, is this species in which young plants have black, hooked, central spines.

*P. obrepanda* (S.-D.) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64. Syn. *Pseudolobivia fiebrigii* (Guerke) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64.

*P. pelecyrhachis* (Backbg.) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64. Syn. *Echinopsis pelecyrhachis* Backbg., 1934r, Kaktusář: 65-66.

*P. polyancistra* (Backbg.) Backbg., 1942, Fedde Rep.: 65. *Echinopsis polyancistra* Backbg., 1933c, Der Kakteen-Fr.: 18.

*P. potosina* (Werd) Backbg., in Krainz, 1942, Beitr. Sukkulentenk.-pflege: 64.

SUBTRIBUS 2. Austrocactinae

NATIO 7. Lobiviae

SUBNATIO 1. Eriolobiviae

84. *Acanthocalycium* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 224, 412. Type: *Echinocactus spiniflorus* K. Sch. Syn. *Spinicalycium* nomen nudum, in Kreuzinger, 1935: 36.

*A. chionanthum* (Speg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 225.

*A. formosum* (Pfeiff.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 224.

*A. hyalacanthum* (Speg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 225.

*A. klimpelianum* (Weidl. & Werd.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 225.

*A. oreopogon* (Speg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 225.

*A. peitscherianum* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 225, 412.

*A. spiniflorum* (K. Sch.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 226.

*A. thionanthum* (Speg.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 227.

*A. violaceum* (Werd) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 226.

85. *Acantholobivia* Backbg., 1942a, Cact. Jahrb. DKG.: 32, 76. Type: *Lobivia tegeleriana* Backbg. This genus has been erected as a segregate from *Lobivia* according to the following characters, of which those of the flowers are particularly distinct from *Lobivia:* flowers with rather short tube and limb, not widely opening, self-fertile; ovary at first woolly; fruit when mature producing spines and splitting at the base.
*A. tegeleriana* (Backbg.) Backbg., 1942a, Cact. Jahrb. DKG.: 32. This species typically has reddish-orange or orange flowers. Syn. *Lobivia tegeleriana* Backbg., 1936o, Cact. Jahrb. DKG.: 82. *Lobivia tegeleriana* var. *eckardtiana* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28. *L. tegeleriana* var. *medingiana* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28. *L. tegeleriana* var. *plominiana* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.

86. *Lobivia* Br. & R.

Subg. 1. *Eulobivia* Backbg. ,1942a, Cact. Jahrb. DKG.: 33, 76.

Due to an error in editing, the Latin diagnosis of the two subgenera were exchanged in this publication. Type: *Echinocactus pentlandii* Hooker. In this subgenus the inner perianth-segments and the stamens are erect and connivent with the style. The flowers do not close until they wither. The flower illustration in Britton & Rose, 1922: 55, fig. 71, which is a representation of the original illustration of *Echinocactus pentlandii* is either not well painted, or is a plant different from that generally understood now as *Lobivia pentlandii.* This figure shows a flower similar to that found in my *L. mistiensis,* an intermediate form between the rotate flowers of subgenus 2 and those with connivent perianth-segments as found in subgenus 1. Perhaps the true *L. pentlandii* was a plant nearly like my *L. mistiensis,* but it is impossible to be sure. At any rate, no modern collector has found so many varieties of *L. pentlandii* as are recorded in the literature. It may be that these more recently described varieties have been erroneously identified with *L. pentlandii* through the original flower drawing.

*L. hermanniana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 228, 413.
*L. pentlandii* var. *albiflora* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pentlandii* var. *atrocarnea* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pentlandii* var. *castanea* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pentlandii* var. *elegans* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pentlandii* var. *leucantha* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pentlandii* var. *maximiliana* (Heyd.) comb. nov. The combination appeared but was not effectively published in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28. Syn. *Lobivia corbula* (Herrera) Br. & R. This plant, which I found in Peru near Lake Titicaca (Juliaca) and near Cuzco, comes nearest the original description of Hooker's plant.

Subg. 2. *Neolobivia* Backbg., 1942a, Cact. Jahrb. DKG.: 33, 76.

Type: *Lobivia leucorhodon* Backbg. Syn. *Hymenorebulobivia* Kreuzinger, *Cinnabarinea* Kreuzinger, *Andenea* Frič, all nomena nuda in Kreuzinger, 1935. In this subgenus the flowers are rotate (funnelform in *L. mistiensis* and *L. pampana* Br. & R., but inner perianth-segments not connivent).

*L. argentea* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 227, 413.
*L. allegraiana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 232, 413.
*L. backebergii* (Werd.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 233.
*L. binghamiana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 232, 413.
*L. breviflora* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 231, 413.
*L. carminantha* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 228, 413.
*L. chereauniana* (Schlumb.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC:
*L. chereauniana* (Schlumb.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 231.

*L. chrysantha* (Werd.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. chrysantha* var. *janseniana* (Backbg.) comb. nov. Syn. *Lobivia janseniana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 239, 414.
*L. chrysantha* var. *leucacantha* (Backbg.) comb. nov. Syn. *Lobivia janseniana* var. *leucacantha* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 239, 414.
*L. claeysiana* Backbg., 1937a, Blätt. f. Kakteenf., 1937-1.
*L. cylindrica* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 244, 415; first mentioned in Backeberg, 1934y, Der Kakteen-Fr.: 87.
*L. drijveriana* Backbg., 1933j, Der Kakteen-Fr.: 91.
*L. drijveriana* var. *astranthema* Backbg., 1934f, Blätt. f. Kakteenf., 1934-6.
*L. drijveriana* var. *aurantiaca* Backbg., 1934e, Blätt. f. Kakteenf., 1934-5.
*L. drijveriana* var. *nobilis* Backbg., 1934e, Blätt. f. Kakteenf., 1934-5.
*L. duursmaiana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 233, 414.
*L. emmae* Backbg., 1948a, The Spine: 109.
*L. emmae* var. *brevispina* Backbg., 1948a, The Spine: 109.
*L. famatimensis* (Speg.) Br. & R. Syn. *Lobivia pectinifera* Wessner, 1940, Cact. Jahrb. DKG.: 13. In my opinion, and in that of Dölz and Werdermann, 1948: 5, it is not sufficiently established that Spegazzini's plant is different from Wessner's.
*L. famatimensis* var. *albiflora* (Wessner) comb. nov. Syn. *Lobivia pectinifera* var. *albiflora* Wessner. 1940: 14.
*L. famatimensis* var. *aurantiaca* (Backbg. ex Wessner) comb. nov.; as nomen nudum in Backeberg 1937m, 10 Jahre Kakteenf. (catalog): 25. Syn. *Lobivia pectinifera* var. *aurantiaca* Backbg. ex Wessner, 1940, Cact. Jahrb. DKG.: 15.
*L. famatimensis* var. *cinnabarina* (Backbg. ex Wessner) comb. nov.; as nomen nudum in Backeberg 1937m, 10 Jahre Kakteenf. (catalog): 25. Syn. *Lobivia pectinifera* var. *cinnabarina* Backbg. ex Wessner, 1940, Cact. Jahrb. DKG.: 15.
*L. famatimensis* var. *haematantha* (Backbg. ex Wessner) comb. nov.; as nomen nudum in Backeberg 1937m, 10 Jahre Kakteenf. (catalog): 25. Syn. *Lobivia pectinifera* var. *haematantha* Backbg. ex Wessner, 1940, Cact. Jahrb. DKG.: 15.
*L. famatimensis* var. *longispina* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 25.
*L. famatimensis* var. *nigricans* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 25.
*L. famatimensis* var. *oligacantha* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 25.
*L. famatimensis* var. *rosiflora* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 25.
*L. famatimensis* var. *setosa* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 25.
*L. haageana* Backbg., 1933j, Der Kakteen-Fr.: 90.
*L. haageana* var. *albihepatica* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. haageana* var. *bicolor* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. haageana* var. *chrysantha* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. haageana* var. *cinnabarina* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. haageana* var. *durispina* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. haageana* var. *grandiflora-stellata* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. haageana* var. *leucoerythrantha* nomen nudum, in Backeberg & Knuth, 1935, Kaktus-ABC: 236.
*L. hertrichiana* Backbg., 1933n, Der Kakteen-Fr.: 103-104.
*L. higginsiana* Backbg., 1933cc, The Cactus Journal Gr. Brit.: 31.
*L. hossei* (Werd.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 237.
*L. incaica* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 233, 413.

*L. iridescens* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 233, 414.
*L. jajoiana* Backbg., 1934f, Blätt. f. Kakteenf., 1934-6.
*L. johnsoniana* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 25.
*L. kupperiana* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 234, 414.
*L. leucorhodon* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 234, 414.
*L. leucoviolacea* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 229, 413.
*L. marsoneri* (Werd.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 237.
*L. mistiensis* (Werd. & Backbg.) Backbg., 1934l, Blätt. f. Kakteenf., 1934-12. Syn. *Echinopsis mistiensis* Werd. & Backbg., in Backeberg, 1931, Neue Kakt.: 84.
*L. mistiensis* var. *brevispina* Backeberg & Knuth, 1935, Kaktus-ABC: 229, without Latin diagnosis.
*L. mistiensis* var. *leucantha* Backeberg & Knuth, 1935, Kaktus-ABC: 229, without Latin diagnosis.
*L. nealeana* Backbg., 1934a, Blätt. f. Kakteenf., 1934-1.
*L. nigrispina* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 235, 414.
*L. planiceps* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 233, 414.
*L. polaskiana* Backbg., 1948a, The Spine: 107, 111.
*L. polycephala* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 231, 413.
*L. pseudocachensis* Backbg., 1934e, Blätt. f. Kakteenf., 1934-5.
*L. pseudocachensis* var. *cinnabarina* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pseudocachensis* var. *sanguinea* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. pugionacantha* (Rose & Boed.) Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 235.
*L. raphidacantha* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 230, 413.
*L. rebutioides* Backbg., 1934l, Blätt. f. Kakteenf., 1934-12. Syn. *Lobivia chlorogona* Wessner, 1940: 16. *Lobivia wessneriana* Fritzen, 1940: 34-35, may be a variant of this species.
*L. rebutioides* var. *kraussiana* Backbg., 1949g, Deutscher Gart.: 7.
*L. rossii* Boedeker, 1933: 167-168. I consider this a polymorphic species to which several of Boedeker's names must be reduced. The bluish-red flowering *Lobivia walterspielii* Boed. may also belong here.
*L. rossei* var. *hardeniana* (Boed.) comb. nov. Syn. *Lobivia hardeniana* Boedeker, 1936a: 24-25.
*L. rossei* var. *stollenwerkiana* (Boed.) comb. nov. Syn. *Lobivia stollenwerkiana* Boedeker, 1936: 59-60.
*L. rossei* var. *boedekeriana* (Harden) comb. nov. Syn. *Lobivia boedekeriana* Harden, 1936: 70-71.
*L. rubescens* Backbg., 1932f, Der Kakteen-Fr.: 122-123, as *Echinopsis* (*Lobivia*) *rubescens*.
*L. sanguiniflora* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 235, 414.
*L. schneideriana* Backbg., 1937l, Blätt. f. Kakteenf., 1937-12.
*L. schneideriana* var. *cuprea* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 24.
*L. stilowiana* Backbg., 1949i, Jahrb. Schw. KG.: 31-32.
*L. sublimiflora* Backbg. ex Wessner, 1940, Cact. Jahrb. DKG.: 17-18. First described without Latin diagnosis in Backeberg, 1935i, Blätt. f. Kakteenf., 1935-9.
*L. varians* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 230, 413.
*L. varians* var. *croceantha* Backbg., in Backeberg & Knuth, 1935, Kaktus-ABC: 230, 413.
*L. wegheiana* Backbg., 1933r, Bull. Cactéoph. Belges: 8-9.
*L. wegheiana* var. *brevispina* nomen nudum, in Backeberg, 1937m, 10 Jahre Kakteenf. (catalog): 28.
*L. wrightiana* Backbg., 1937l, Blätt. f. Kakteenf., 1937-12.

FIG. 27. *Rhipsalidopsis rosea.* Photo by De Laet in National Cactus and Succulent Journal, England.

# RHIPSALIDOPSIS ROSEA

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Although this plant is the finest-flowered member of the *Rhipsalidanae,* it seems to be completely lacking in American collections. Whether it has ever been grown here to any extent is doubtful, as its name is seldom mentioned in our books and journals; certainly if it had been grown one would expect to find enthusiastic accounts of it, for besides being an easily raised plant, a large specimen in full flower is an arresting sight.

In Europe it has been cultivated more extensively, though never with the popularity it deserves. In 1948 I obtained two small plants from a Dutch collector, H. L. Blonk, and after a long winter's waiting one of them produced several flowers the following April. When it had grown luxuriantly for another year it obliged with some 25, again in April. These flowers are so superior in color and form to those of any *Rhipsalis* species, that it is hard to understand why the plant has been neglected. That it has not appealed to the average amateur cannot be the reason, for its rarity has kept it completely unknown here. To remedy this situation, cuttings are being distributed to the trade, from whence it is hoped the plant will spread sufficiently to prove its value.

There has been little written about this choice species, but what could be found in the available literature—mostly foreign—is summarized here for the benefit of those who do not have access to these sources (which are listed at the end of the article). A number of my own observations and opinions are included.

*Rhipsalidopsis rosea* (Lagerh.) Br. & R. blooms consistently in March or April, and Berger states that it "blooms well at Easter." Not only does it share the same flowering period with *Schlumbergera gaertneri,* but in general appearance it can be considered a smaller counterpart of that fine old favorite, both in stem and flower. Although dwarfed in diameter by those of *Pseudorhipsalis macrantha* (3″), the flowers of *Rhipsalidopsis* (slightly over 1″) are otherwise exceeded in size among the *Rhipsalidanae* only by the little-known yellow-flowered *Rhipsalis megalantha* (1½″); due to their beautiful rosy color, however, those of *R. rosea* are far more attractive than any other to be found in the whole sub-tribe. Of course it might lose this distinction if we followed Backeberg and included *Schlumbergera, Zygocactus* and *Epiphyllanthus* in the *Rhipsalidanae!* Yet personally I prefer its flower to that of *Schlumbergera* at least—though smaller, its petals expand widely, have better proportions, and the whole flower tends to face the observer rather than the ground. This latter is important, because one of its best points is that the color deepens toward the center and forms a good contrast to the yellow stamens and white stigma. There is a definite fragrance, reminiscent of roses or cedar-oil (according to Vaupel), which is especially noticeable in a closed room. The flowers last about three days, open only in sunlight, and soon close when brought into the shade (whereas most *Rhipsalis* species have flowers which usually open just once and are then little affected by light conditions). They appear singly or in two's at the ends of the joints but, strictly speaking, are not terminal: as in all "terminal"-flowered members of the

*Rhipsalis* group (including *Zygocactus* and *Schlumbergera*), the flower on the end areole is slightly off-center. No description can be found of the fruit of *R. rosea,* and none formed on the writer's plant.

Aside from its flowers, this species is interesting in that it has two stem-forms; the first occasionally appears at the base of the plant, or on the stems which have recently flowered, and consists of bristly 3- to 5-angled joints of a cereoid appearance. These are soon replaced by normal two-sided joints which are rather similar in shape to those of *Schlumbergera,* though only about 3 cm. long. Vaupel mistakenly believed that these were mainly found on grafted plants, but they are simply the more mature form. Sometimes one of the bristly growths does produce a flower and Vaupel illustrates such an occurrence. (A similar stem dimorphism is found in *Hariota salicornioides* which often will produce bristly sausage-like joints, either singly or in masses, totally unlike the normal clavate ones. When this form is separated from the normal and grown on its own roots it will often continue to produce this bristly growth; the resulting plant would mystify anyone not knowing its origin—in fact it once had its own name, var. *setulifera* Hort.)

*R. rosea* is easily grown. As the species grows natively at a rather high altitude it dislikes too much heat; it seems to thrive best in a humid atmosphere, however, Lagerheim stating that it drops its joints when grown in the dry air of a living-room. Both Vaupel and Berger recommend that it be grafted, and this seems to be the usual way it is grown in Europe (where grafting is much more commonly resorted to than here). The imported plants had *Pereskia* as a stock which, being rather withered, was removed. From the luxuriant growth and flowers since produced on their own roots, there really seems little point in grafting.

As with other epiphytes it should be grown in a shaded position, and in a soil consisting largely of leafmold which should never be allowed to dry out; however, the watering should be decreased somewhat during midwinter to allow the end-joints to mature and set buds. This is in contrast to *Rhipsalis* species, which are mostly winter bloomers. Cuttings root quickly, each forming a bushy tree-shaped plant whose stems eventually become pendant. No record can be found as to how large it becomes, but a collector in Holland, W. Schuur, states that a plant he grew from a two-jointed cutting in 1934 produced some 60 flowers in 1947. Despite its supposed dislike of dry air, his plant was grown from the beginning in a living-room, and soon flowered each year. It remains to be seen how well it prospers in our drier American atmosphere. My own specimen, grown in a cold frame under slightly humid conditions, and one grown from a cutting obtained from me by Otto Sokol, a local collector, and hung out of doors under a rose arbor, have done equally well except that mine has flowered (whether because of age or cultural differences is not certain) and his has joints proportionately wider than mine. Further experimentation would decide under what conditions it is best grown.

H. Harms gives some interesting information concerning the first discovery of this plant. Per Dusén, a Swedish botanist (who had earlier discovered the fascinating *Epiphyllanthus opuntioides*), found it growing at the comparatively high elevation of 1100-1300 m. (about 3500-4000 feet) in the forests near Caiguava, in the state of Parana, Brazil. It was among the plants he sent in 1911 to the Botanical Institute in Stockholm where, after blooming, it was described in 1912 by Gustaf Lagerheim under the name of *Rhipsalis rosea.* In 1923 Britton and Rose gave it the status of a monotoypic genus; as an illustration they reproduced Lagerheim's original plate, the species apparently not having been seen in this country at the time (nor since? The writer would appreciate hearing from those who can vouch for its presence here in the past).

In Backeberg's 1941 review of the Cactaceae it is grouped with *Epiphyllanthus,* both genera having opuntia-like joints; he also considers *Schlumbergera* and *Zygocactus* close allies in this system which includes the three last-mentioned genera in the sub-tribe *Rhipsalidanae.* Here it should be noted that while these were placed by Br. & R. in the *Epiphyllanae* they have never seemed quite at home there. Although it is difficult to define a clear boundary between these two sub-tribes, Backeberg's innovation seems a distinct improvement in the classification of these plants.

As a genus, *Rhipsalidopsis* seems at first to be founded on tenuous characters. It is supposed to differ from *Rhipsalis* in having a short tube—it is indeed short, the petals merely adhering together at the base for a distance of two or three millimeters. There is no vestige of the conventional tube, as represented in this subtribe by *Pseudorhipsalis,* in which the petals are completely fused at the base into a smooth columnar structure. Outside of this one difference, the flower seems to have no important characteristic which is not to be found in *Rhipsalis*; its rosy color is at least partially duplicated in *R. pulchra,* while such species as *R. cribrata* and *R. cereuscula* are terminal-flowered. Not mentioned by Br. & R. is the fact that its ovary

is 4- to 5-angled, instead of being round as in *Rhipsalis*—but again there are exceptions: *R. houlletiana* also has 4-5-angled ovaries.

In other words, *Rhipsalidopsis* seems to have no single major characteristic on which a genus can be based—yet it does have a number of lesser distinctions which it shares with *Schlumbergera;* angled ovary, comparatively large, reddish, regular flowers which are affected by sunlight, petals united for several millimeters, and similar stem-shape. Certainly then the two are equally well-founded, and when all their characteristics are considered *together* they seem quite distinct from *Rhipsalis.**

It should be obvious that the species has considerable possibilities for the hybridizer. Werdermann describes and pictures a cross with *Schlumbergera gaertneri* (seed parent), the resulting flower being nearly two inches in diameter, or twice as large as in *Rhipsalidopsis,* and of a more bluish-red shade; also the stem-segments are larger. This cross was the work of Alfred Graeser in 1932, and received the name of *XRhipsalis graeseri* Werd. (this botanist not recognizing *Rhipsalidopsis* as a genus), the bigeneric name *XRhipsaphyllopsis* also being proposed in case Berger's genus (*Epiphyllopsis,* based on *S. gaertneri*) became universally accepted. It would certainly be desirable if by hybridizing one could transfer the floral color of this plant to such things as *Pseudorhipsalis macrantha,* while the floral size, in addition to color, should produce interesting improvements in species of *Lepismium, Hariota,* and the more distinctive-stemmed of the *Rhipsalis.* While there is some doubt that such crosses are possible (at least there is no record of these genera being crossed with *Zygocactus* or *Schlumbergera*), the attempt should certainly be made. This is a project to which any amateur can contribute.

There is every reason to believe that this beautiful plant will become very popular with collectors. Or it may be that, carried away by enthusiasm, the writer has lost his sense of judgment. In any case, now that the species is becoming available its eventual reception will be revealed within the near future.

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* * *

**BOOK REVIEW**

THE ALOES OF SOUTH AFRICA, by G. W. Reynolds, XXIV + 520 pages, 1950.

The publication of this work had been eagerly anticipated for some time by many of us who have long known of Mr. Reynolds researches in this particular genus of South African plants; a genus which comprises the most colorful of the succulent plants of that country.

The book consists of two main parts. Part I, contains brief sketches of historical interest, the voyages and expeditions of early days touching upon South Africa; the travels and explorations in South Africa and the men who made them, from the earliest to more recent times. Bibliographical notes from pre-Linnean days up to the present work. While these notes and sketches pertain chiefly to Aloe they naturally convey much of interest regarding the general flora and the botanists of South Africa. Numerous reproductions of early maps, early plates and figures of Aloes are scattered throughout these pages, adding to the interest.

This part which takes up some 100 pages of the book, must have involved a vast amount of patient research and makes fascinating reading and forms a most interesting prelude to the second part of the book.

Many people in this country are familiar with Aloes, as there are several, including *Aloe variegata, A. saponaria, A. arborescens* and *A. ciliaris* which are extensively used as pot plants and also in so-called cactus bowls; while in the more temperate regions, as in So. California and Florida, many Aloes are planted around homes and in the gardens, where, during our winters, when they flower, their bright colors are greatly enjoyed. However, it will come as a great surprise to know that there are such a large number of South African Aloes which have never been seen in cultivation in this country. Aloes of which one had little realization of their appearance, until seeing the beautiful color plates which are such an outstanding feature of Part II.

This second part of the book embraces some 400 pages and contains the fine color plates, of which there are 77, and innumerable black and white photos of plants, habitats, flowers, reproductions, etc. Mr. Reynolds has always been noted for the high standard of his photography, and when one considers the many unfavorable conditions which the photographer encounters in the field, especially when photographing plants in flower, the photos are very fine indeed. It is in the color plates, however, where he seems to have

*A relevant and very similar case is Backeberg's genus *Pseudozygocactus,* based on *Rhipsalis epiphylloides* Campos-Porto et Werd.; this species was separated from the latter genus because of its *Zygocactus*-like joints, its (usually) terminal flowers, and its angled ovary. As there is a tremendous range of stem-form in *Rhipsalis,* which also has members with terminal flowers and those with angled ovaries, it can be seen that the argument in favor of *Pseudozygocactus* depends on the evaluation of all three characters together, rather than of any one. Needless to say, this genus is not accepted by the more conservative authorities.

excelled himself. Most of them may be termed superb, but several are also very artistic as well. A few which especially appealed to me, are the plates of *Aloe striata, A. aculeata, A. petricola, A. khamiesensis,* and *A. rubrolutea.*

We must, however, return to the more botanical aspects of Part II. The classification of the Aloes follows that used by Berger, and slightly emended by the author. A key is given to the sections, subsections and series, and each of these have keys to the species belonging there.

There are 132 species of Aloe in South Africa, as enumerated by Mr. Reynolds, this excludes the varieties of species.

The synonomy and the description of each sp. is given in exacting detail, and each Aloe has, where possible, at least one black and white, habitat photo of a plant in flower, and in addition a photo of a series of flowers from the early bud to the post-anthesis stage. Notes on the distribution, climate conditions, Native plant lore, historical notes and notes on the natural hybrids which may occur, combine to give a very complete picture of each Aloe.

Two of the early sects. encountered, *Graminaloe* and *Leptaloe,* contain those small Aloes which are hardly known here, except by name, such as *Aloe myriacantha, A. minima, A. Saundersiae, A. kniphofioides,* and *A. chortolirioides.* These Aloes have characters distinct from the more familiar fleshy and broader leaved Aloes, the leaves usually quite thin, narrow, and often grassy-like. The colored plates of *Aloe kniphofioides, A. Vossii,* and *A. microcantha* show very attractive little Aloes of this nature.

We follow on through the various sects., passing on the way many lovely and interesting plants, *Aloe Vogtsii, A. cryptopoda, A. arenicola, A. comosa, A. recurvifolia, A. Reitzii, A. Gerstneri, A. Angelica,* and *A. spectabilis* to mention a few by name. Toward the end we come to the tree-like *A. dichotoma* and *A. Bainesii.* There is a fine color plate of *A. dichotoma,* an old specimen, dignified and aloof, growing in the stark, arid regions of its home. The last of the Aloes to be described is the well known Fan Aloe, *Aloe plicatilis,* the sole representative of the sect. *Kumara.* It is probable that of the 132 spp. of Aloes enumerated, scarcely one half of this number are or have been in cultivation here. At one time or another I have grown 60 of the South African spp. and no doubt in the fine collection assembled by Mr. Hertrich in the Huntington Botanical Garden others may be found. It would seem from this, that we have yet to see many of the beautiful Aloes of South Africa in our gardens. Probably many of the Aloes from the highlands of the Transvaal, where they are subject to pretty cold conditions at times, would prove to be hardy and well worth introducing here.

This book is not to be mistaken for a dry recital of plant descriptions which so often discourages the non-botanist. While retaining its botanical accuracy, it seems to have a sparkle not often found in a work of this scope. No doubt this is due to the tremendous enthusiasm of the author for his subject, an enthusiasm which seems to infuse the pages of the book. Due to the many fine photographs one can still obtain a very good idea of the Aloes without using the detailed descriptions. The photographs, taken in the field, giving a very fine conception of the relative size and habit.

One is carried to the far off corners of South Africa, from the slopes of Table Mountain where *Aloe succotrina* grows to the arid regions of Namaqualand to see the brilliantly flowered *A. khamiesensis.* From the Karroo, where is seen that favorite, the Partridge Breast Aloe, *Aloe variegata,* to the coastal regions of Natal to view the lovely *A. Thraskii.*

The author shows an easy familiarity with his favorite plants, having travelled over 100,000 miles during the past 20 years acquiring this intimate knowledge.

Only those Aloes south of latitude 22 are included in this work, with one exception, *Aloe Christianii,* from Southern Rhodesia.

The Foreword of this book was written by the late Field-Marshal J. C. Smuts, that great South African statesman, who knew and loved the plants of his country, and he pays Mr. Reynolds a fine tribute for his work.

The book is well indexed, the end indices having one for the plants and a separate index of personal and place names, etc. A glossary is also included.

This book seemed worthy of a better map. Comparatively few people in the northern countries are very familiar with the geography of South Africa. The relative positions of the Transvaal, Natal, Orange Free State, etc., within South Africa being little known. These divisions of the country are named throughout the book and it would have aided the readers had these been mapped.

The paper is good and the type clear and distinct, although, due to the condensation of so much material in one volume, the print is in many instances rather small, especially for weaker and older eyes.

This work, while probably the finest presentation of one group of plants ever published, could, I think, have been greatly enhanced in quality had it been possible to present it in two volumes instead of one. This would have allowed better spacing and in some places larger type. This fine book does seem crowded.

A table of the approximate flowering times of Aloes in South Africa is also given, but there seems to be a variance of about 6 months in the time of flowering in South Africa and the flowering time in northern climes.

The few errors or omissions noted seem to be of a more or less trivial nature.

In conclusion it can sincerely be said of this work—a tremendous task splendidly done.

The Aloes of South Africa by G. W. Reynolds. Published by the Trustees, The Aloes of South Africa Book Fund, P. O. Box 2097, Johannesburg, South Africa. December, 1950. For sale at the office of this Journal, price $14.50 postpaid in U. S. A.

J. R. BROWN.

**Reprint of "Stachlige Wildnis"**

By Curt Backeberg. The first printing in 1943 contained 422 pages plus 100 pages of photographs. The new edition has been shortened to make a popular edition but it still contains 110 photographs similar to those on pgs. 9 and 135 (Vol. XXII) Cactus and Succulent Journal of Am. Although this book is in German, it is the most complete travelogue of a collector in Mexico and South America. Abbey Garden Press has secured exclusive sale in the U.S.A. Price will be approximately $4.00 plus postage. Send us your order now and we will have a copy forwarded from Germany and bill you after shipment (price not to exceed $5.00). Expected delivery in April.

**Order the new Aloe book now and check your plants. Dr. Reynold's 650 page monograph with 572 illustrations and 75 color plates is now being shipped from So. Africa. Order your copy now ($14.50 postpaid direct from Africa, $14.92 in California). Exclusive distributor in North America: Abbey Garden Press, 132 W. Union, Pasadena, Calif. Out of stock orders can be filled at once if you add 50c duty.**

FIG. 23. *Echinocereus purpureus* (nat. size) grows through western Oklahoma. Plant on left shows proliferation.

## BEAUTIES OF WASTELAND

*By* MARION SHERWOOD LAHMAN

There is in western Oklahoma, a spectacular outcrop of gypsum, extending for over six hundred miles from the Kansas line the length of the state and well into Texas. It is the largest surface formation of its kind known. Its northern evidence is the hundred-mile long Chatauqua Range with shining white gypsum cliffs. Farther south, are scattered, isolated hills and occasional areas of gyp surface crust. Along the eastern limit of this formation are the Red Beds, their brick-red soil strewn with barium-sulphate rosettes called "rock roses." In southern Oklahoma, the gypsum outcrop has veered to the southwest, making way for upthrusts of red granite, visible in Mt. Scott and the boulders in Medicine Park and the Wichita National Forest Reserve.

This far reach of uncultivated, sparsely populated wasteland is the native home of a score of different species of cacti that have the loveliest flowers of all of Oklahoma's thousand and one kinds of wild flowers. It is noteworthy that this wasteland is not desert. The ground is flooded by spring rains and is covered with occasional snows in winter. Where the rich earth is free of stone, it supports a growth of tall prairie grass interspersed with seasonal successions of wild flowers overtopping many small cactus plants, noticeable only when in bloom. One day late in May, in a granite-strewn meadow at the foot of Mt. Scott, I saw in full bloom, gaillardias, coeropsis, larkspurs, scarlet mallows, snowy spurge, purple skullcaps, penstemons, pink oxalis and a dozen other wildings including prickly-pears with three-inch golden blossoms, and several kinds of hedgehog cacti showing large silken beauties tinted from pink to deep purple-red.

Not lack of rain, maker of deserts, but an over abundance of rock-rubble and gypsum surface crust makes the waste lands useless for agriculture. That condition too, is the reason for its being a cactus refuge. Oklahoma cacti at least, like to send their long, fibrous roots under rocks which keep moisture from evaporating. Also, in uncultivated ground, cacti are safe from the plow which is death to them because they are long-lived perennials that take several years to grow from seedling to seed-bearing. Therefore these little hedgehogs of

the plant world cannot make a quick come back like an annual. The latter can scatter seed every year, producing new plants after the parent is destroyed.

Usually, cacti in general are spoken of as desert plants, yet a large per cent of the two thousand known species of cacti live in non-desert places. Florida which is anything but desert has at least forty kinds of native cacti. Many of them grow on the low, coastal islets of coral sand where underground water is near the surface. In the steaming jungles of Central America, are cactus air-plants (epiphytes) which get all their food from the surrounding damp air. On the other hand, desert soil often is fertile enough when supplied with water. Examples are Imperial Valley in southern California and the Winter Gardens in southern Texas.

As a rule, distribution of species varies with geographical location. For instance, the many kinds of cacti found from Colombia, S. A., to Patagonia are not native in North America. And the gorgeous-flowered variations of Echinocereus, peculiar to the waste lands of western Oklahoma, stay strictly within the limits of their six hundred mile north and south domain, checked by the Red Beds and cultivated lands on the east and by the higher, drier plains of New Mexico on the west. A dozen different kinds of Opuntia are common in the gypsum strip, too, but they grow also in various other regions.

The Echinocereus varieties above mentioned, have their own peculiarities not shared by those other Echinocereus species found in arid parts of the great Southwest. Those sons of the semi-desert have long been scientifically named while recognition of our natives of the gypsum strip was long delayed. In 1845, just over one hundred years ago, the pioneer botanist, Dr. G. Engelmann, named the first recognized species of this group. There the matter rested for some eighty years until Vernon Bailey carried a specimen to Dr. Rose who named it for the finder. When that monumental work, The Cactaceae, Britton and Rose, was published, it contained no mention of any of the other varieties so numerous in western Oklahoma. Since then, four more species have been recognized. But there still is a bewildering lot of variations that have never been described anywhere.

In 1926, the author, having discovered this fascinating field, began a systematic study of the life-history of some of the most pronounced variations. It was manifestly impossible to make sustained observations of individuals during a period of several years while they were in the far-apart locations in their native habitat. So selected specimens were taken to the Tulsa Experiment Garden. There, under daily observation, life histories were traced from seedling to seed production. It took four or five years for a fuzzy little seedling, the size of a grain of wheat, to grow to blooming size which is about four inches in height. Each seedling has a pair of broad seed leaves, absolutely the only leaves an Echinocereus ever has, even if it lives a quarter of a century as some of them do.

The seedlings raised in the Garden usually came true, but once there was a slight variation in the matter of spines. Several variable specimens brought in from the field, were photographed when in flower, for three successive years to find out whether they changed with age but none of those studied ever did. The captive plants bloomed freely, maturing bright-green fruits which, when ripe, split lengthwise, revealing many tiny black seeds. The first lot was lost because, overnight, little black ants carried off every one. Thereafter maturing fruits were wrapped in cotton which saved seeds for experimental planting. Another thing learned in the Garden was that these hardy little perennials needed a good rest in winter. If they were kept growing in a warm, sunny window through the winter months they were too exhausted to bloom the next spring, as they always did when left in the ground the year round. To help out the observations in the Garden, a field trip was taken each year, usually in June. Only in the field could be learned such things as that distinct species are inclined to grow in colonies by themselves; although the colonies might be scattered locally, from Kansas to Texas. Variations too could be brought in until the Garden was full of them.

After eight years of careful study covering the most pronounced variations, raising seedling until they bore seed, counting spines, making pictures, it was decided that at least four of the Beauties of the Wastelands really were new species, deserving names of their own. They were labelled *Echinocereus purpureus, E. albispinus, E. oklahomensis, E. longispinus.* The manner of their introduction to the botanical world was as follows. A detailed description in Latin of each species, with photographs, was printed in the Cactus and Succulent Journal of America. Living specimens called type plants, were sent to the Missouri Botanical Garden, the New York Botanical Garden and the Smithsonian Institution, Washington, D.C.

The names were accepted by leading botanists at home and abroad and are still being used.

The tufted hedgehog cactus (*Echinocereus*

*reichenbachii*) was first introduced as *E. caespitosus,* which means tufted. But that adjective is not distinctive because all of the thirty or more known species in this group, grow tufted with age. Young plants up to ten years old of age, seldom have more than one stem. Echinocereus is Latin for hedgehog wax candle, so all the kinds are called hedgehog. Here again, the descriptive "hedgehog," does not fit this particular cactus because its very short spines are laid flat like the teeth of tiny combs, making the plant easy to handle.

*Echinocereus reichenbachii* is an exceedingly variable cactus. It is supposed to be the forefather of all the later-named species and the numerous variations found in the gypsum strip running the length of western Oklahoma, herein called the Wastelands. The large, silken blossoms are fragrant and are visited by small bees and Hopla beetles. It is amusing to watch these bumbling in the foam of yellow stamens which fill the center of the flower-cups. Thoroughly dusted with pollen, they fly from flower to flower, effecting the desired cross-pollination.

The latter may be responsible for some of the variations. But it does not explain the evolution of the remarkable traits shown in this Echinocereus group which for so long escaped the notice of botanists. There are about thirty other species of Echinocereus, all peculiar to the southwestern United States. But none of these are found as far east as the Oklahoma Wastelands. So where did our unique *Echinocereus reichenbachii* come from? It is known to range from just north of the Kansas line, south through Oklahoma into west Texas, there veering southwest past Big Springs into the rocky wilderness of the Big Bend country. However, the five new species belonging to our group are not yet known outside the State.

Like their ancestor, *E. reichenbachii,* they have silken petals that close over the stamens at night, protecting them from nocturnal dew. None of the flowers of the southwestern lot do that. In their semi-arid haunts there is no need of protection from dew.

One thing we did learn. It was not gypsum outcrop in particular that our little strangers needed. It was any kind of surface rubble which gave root protection from drought. In the southern part of the State where the Wichita upthrust had pushed aside the gypsum crust, all the new species flourished and multiplied. A granite boulder with a lovely-flowered hedgehog cactus blooming in a disintegrated pocket was no uncommon sight. Again, in the Tulsa Experiment Garden, the cactus plants brought in for observation, were mulched with shaly sandstone the local underground rock, excavated in house building. Once settled in rich garden-soil, well mulched with broken sandstone, and shaded by rosebushes, the little emigrants bloomed regularly year after year.

All of them are hardy little perennials, enduring below zero cold in winter and above 100° heat in summer. Their only enemy is the cactus hunter. Because of their unusually beautiful flowers and their adaptivity to cultivation, they are collected by cactus dealers who find ready sale for them; and already those more readily accessible are being decimated. Something should be done to protect them. For they are a wonderful example of the evolution of species, set in Nature's own experiment garden. Perhaps at some other time, I shall be able to tell you more about them. Until then, Adios.

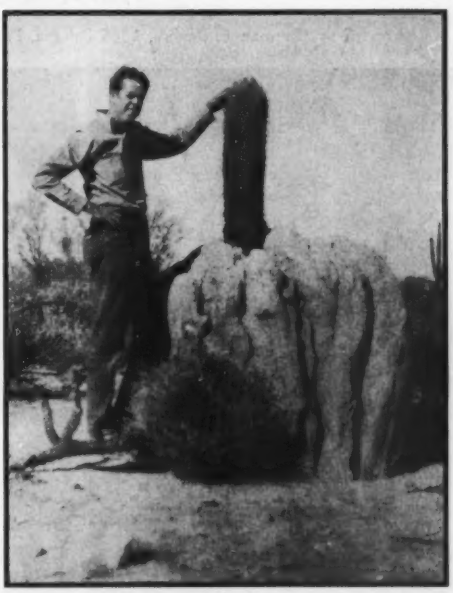

FIG. 29. Harry Johnson, Jr., finds an old specimen of *Ferocactus gracilis* in the Llanos Agua Dulce or Sweet Water Plains near Catavina, Baja California. This plant has had a struggle for existence as it grew from a seed which lodged in a crevice in the top of a solitary granite boulder. Photo by Howard Gates.

**PRESIDENT'S MESSAGE**

Though world politics are grim and forbidding at present it is still possible to speculate about the future. We can at least hope that events will prove the theorists wrong. We are all hoping that our bi-ennial convention at Denver this year will become a reality. With all the careful planning and work done by our friends in Denver and by Mr. Howard Gates at our end, it would be a real disappointment to have our plans thwarted because of the war.

Under the skillful guidance of President Craig the

work of our society has gone steadily forward. Vice-President Rush has been absorbed with his work on the Research Board. Mrs. Rush, our Secretary, working with officers and board members has carried on a voluminous correspondence with cactophiles and societies here and abroad. Our Treasurer, Mr. Glade, always seems able to stretch the treasury's dollars a little farther. Mrs. Caris, our Librarian, is accumulating a thorough going library of cactus and succulent literature and is maintaining a complete index. Mrs. Glade, our corresponding Secretary, has kept us abreast of events concerning our affiliate societies.

The Research Board, under the Directorship of Mr. Rush, is continuing the almost endless task of indexing the Cactaceae of Britton & Rose. Some of their other tasks include: the identification of plants sent in by members, the preparation and filing of herbarium specimens with the Pomona College Herbarium under Dr .Benson, and the assembly of a collection of black and white photographs for identification purposes.

A committee, headed by Mr. Ted Taylor, has already assembled a goodly collection of Kodachrome slides available on loan to affiliate societies.

I am sure all will agree that our Editor, Mr. Haselton, has made the JOURNAL better than ever before. The superb pictures by Mr. Brown and the wonderful new sections in the Jan.-Feb. issue attest to this. The printing of Backeberg's work will be a boon to taxonomists. Trying to please both plant lovers and the scientific-minded is a difficult task.

A kindred interest in these fascinating plants is stirring all over the world. Societies and extensive collections are to be found in England, Europe, Australia, New Zealand, Hong Kong, India, Philippine Islands, besides many other places. Here at home they are becoming increasingly popular as people discover their lovely flowers, endless forms, and the fact that they can be successfully grown even in apartment buildings. With so much evident interest we can all look forward to an exciting year.

HARRY JOHNSON, JR.

## AMATEUR PAGE

Conducted by Sherman E. Beahm, 2686 Paloma, Pasadena, California. A discussion page for beginners.

FIG. 30. *Echinopsis* covered with flowers (upper left). Upper right shows the yellow-flowered *Lobivia huascha. Stapelia gigantea,* 15 in. across, and a section of Mr. Dandridge's rockery is shown below.

### FROM ADELAIDE, SOUTH AUSTRALIA

Mr. P. Dandridge of the Adelaide Botanical Gardens has around a thousand of the larger growing cacti in his care and about 2000 of the smaller cacti and other succulents at his home. While visiting friends in Melbourne he visited the Botanical Gardens there and met Mr. Arthur Burke who is in charge of the cactus collection. He was shown a huge specimen of *Testudinaria elephantipes*—the South African plant with the tremendous tuberous root above ground and having slender twining branches—which had taken eight men to move into position.

## QUESTIONS and ANSWERS

Conducted by
HARRY JOHNSON
Paramount, Calif.

*Question:* How long can an established plant in a clay pot go without water under average wintering conditions without causing harm to the roots? Jack Craig, Modesto, Calif.

*Answer:* If your plant is in heated quarters, either in a window or in a greenhouse, it will dry out and suffer far more quickly than in unheated quarters. A sensible procedure to follow is to give water when the plant shows signs of becoming fluccid or shrivelling. Water moderately as when plants are dormant heavy waterings, where the roots are wet a long time, may start decay. Also one does not want to start premature growth. Cacti coming from regions with rigorous winters normally become quite flaccid when dormant—*Opuntia opuntia, Echinocereus pentalophus,* etc. This is natural and watering often will not plump them up. However, there are not many in this group. If your plants are outside in pots they will go weeks without water. Even then, give them a little water if they are in an exposed, sunny spot.

*Question:* My plants have tiny white bugs in the soil and above. They look something like miniature sow bugs. Are they thrips? Should I repot? I had a *Delosperma* (Mesemb.) in a can with three Haworthias. It dried up but the Haworthias are doing fine. I don't think watering killed it or the Haworthias would have been affected. It had no roots when I took it out though well rooted when potted last spring. Mrs. Lloyd Gilham, Cottage Grove, Oregon.

*Answer:* The bugs are either mealy bug or root mealy bug. Probably the former. These can be easily killed with Volck Spray which is an oil spray. Volck mixed with Red Arrow or similar rotenone or pyrethrum spray gives a very satisfactory kill. The oil penetrates the waxy coating covering the mealy bug and the rotenone or pyrethrum is then very effective. The pots may be soaked in the solution diluted with an equal amount of water. Don't do this in wet, cloudy weather. However, oil sprays will ruin plants with white powdery coverings such as *Cotyledon undulatum, Lemaireocereus pruinosus,* etc., causing them to appear green. The *Delosperma* died from too much water. Plants in cans require careful attention. One good soaking may drown them. Haworthias will take more water without showing immediate effects. However, they have a most unpleasant way of losing their roots by decay while looking perfectly healthy.

*Question:* Limestone gravel is unavailable in my vicinity. Can I use dolomite gravel in place of it for cacti which require lime? Arthur Wm. Voss, N. Y.

*Answer:* Lime can be added in the form of hydrated lime or as pounded, washed eggshells or oyster shells. Dolomite is calcium magnesium carbonate. I am not enough of a chemist to know just how available the calcium would be. Unless your soil was very acid I should think the dolomite though very brittle and hard should do. However the other forms of lime are easily come by.

*Question:* I bought a *Cereus peruvianus* about 2" high with the usual 6 ribs. Recently the new growth has had 5 ribs instead of the usual 6. Jack Hartley, N. J.

*Answer:* The number of ribs on Cerei is not constant but may vary with each season's growth. It varies from three to perhaps nine or more. Especially on the *"Cereus peruvianus."* The plants commonly in the trade are complex hybrids of perhaps ten species. They are very variable. Even the true species are variable. *Cereus hexagonus* is supposed to have six ribs. I have collected it in the truly wild form in central Colombia and it is variable. I have a plant I brought up with me with three ribs. *Cereus trigonodendron* (three angled tree) which I have from the type locality in south eastern Peru has up to nine ribs.

*Question:* I have a plant of *Kleinia tomentosa* which is dropping its leaves. They are drying up and falling off. I understand they should be kept dry at this time of year. Does *Kalanchoe beherensis* ever branch. If so can I make it branch instead of growing taller? Mrs. Lloyd B. Kilham, Oregon.

*Answer: Kleinia tomentosa* is prone to drop its leaves in winter where unvented gas or coal burners are used for heating. Cotyledons sometimes do the same. Also if the atmosphere is too dry or the plants are kept too dry. Perhaps your plants were kept too dry. An occasional light watering will not hurt them. Just don't soak them. *Kalanchoe beherensis* normally does not branch until it flowers which does not occur until the plant is about five feet tall with a trunk the size of your arm. The flowers are not attractive. The plants are in full bloom at this season. I suggest, when the spring is more advanced, you take the top six inches as a cutting and root it easily in a pot of leafmold and sand later transplanting it to soil when well rooted. It probably will not even lose its leaves. The old stub will immediately begin to branch. However, I don't

think you will admire the branched plant. It loses character when it branches.

*Question:* What causes plants to have a scabby appearance? Mrs. W. A. Burkhart, Idaho.

*Answer:* The scabby appearance is brought on by conditions under which the plants are cultivated. The discolorations seem to affect only the epidermis or outside "skin." Along the damper, coastal strip of southern California *Trichocereus spachianus* is generally a pretty rusty specimen. In the interior, dryer regions it is often clean and green. Probably the dew deposited on the plants in the early morning hours makes a fine culture medium for the fungi, bacteria or virus or whatever produces the scabs. Plants from high mountains are prone to become discolored in the hotter lowlands. I don't know of any cure other than plenty of fresh air. The scabs of course when they appear are permanent and if removed leave scars. Not many plants are affected. Young plants will shortly outgrow the effects under good culture and the scars will not be visible. One kind of scab appears to be much more virulent than the others which do not appear to be catching. This form is quickly transmitted. It appears first as a raised blister and the cells beneath the epidermis are discolored blackish. It seems to be particularly hard on *Selenicereus* and *Hylocereus* but I have also seen it on many other Cerei. It might be controlled by Bordeaux Mixture. Since culture is a factor in its spread, prevention is a more feasible defense.

*Question:* Shall I repot my cacti at the beginning of the rest period or just before growth commences? Alfred W. Lane, England.

*Answer:* I have always found the best time to repot is at the beginning or during the active growing season. To disturb the roots at the end of the growing season is to take a chance that broken roots will fail to heal quickly enough to prevent rot starting. We do repot during the winter quite often with good results but do so only to keep our work from bunching up all at one season.

### ROUND ROBIN NEWS

It used to seem a long wait between issues of our JOURNAL but just try writing a column for it and you will find that the weeks slip by all too fast.

Robin No. 3 has started out with another fine group of enthusiasts. Mr. John A. Bock of Sharon, Pennsylvania, kindly offered to direct this Robin and in his group are the following members: Mrs. Lester Averill, Dixfield, Maine; Mrs. J. H. Aldridge, Corinth, Mississippi; Mrs. R. L. Chamberlain, Austin, Texas; Mr. Frank R. Mark, Tucson, Arizona; Mrs. E. Camelbeck, Hudson, New York; and Mr. James W. Garber, Covington, Virginia. Happy flying!

There is room in the Euphorbia Robin for two more members. Mr. Leon W. Frost of Ft. Myers, Florida, requested this Robin and I am in hopes that he will also direct it for us.

A request has reached me from Mr. Frank R. Mark of Tucson, Arizona, for a Succulent Robin, to exclude cacti. He writes that he is specializing on the South African succulents and that his pet interests are the Stapeliads, Haworthias, Lithops, Euphorbias, etc. This Robin will fly as soon as we hear from a few more succulent collectors.

Mrs. J. H. Aldrich of Corinth, Mississippi, is our number one member for the Dish Garden Robin. Her card arrived even before I received my copy of the JOURNAL in which it was mentioned. It seems to me that we might widen the scope of this Robin to include the cute little button gardens which are so popular at this time and even the Terrarium could some into this group. Some comments, please! I wish someone would suggest an attractive name for this Robin.

I understand that the JOURNAL is an International magazine. Why not take this opportunity to meet some of our overseas friends in an International Cactus and Succulent Robin. If the membership is kept small and we use thin paper for our letters, I believe we could send the Robins by airmail. It is a very slow process by regular mail and in some cases hasn't proved satisfactory.

Before closing this column I would like to thank all those who have written to me; their fine letters have been most encouraging. Keep 'em coming!

MABEL H. FAY
123 North Avenue, N. Abington, Mass.

### NEW HOBBY

Cactophiles! Enjoy your hobby in a new way by making a cactus quilt. I have designed one, each block of which is a different blooming cactus, in natural colors, copied, in applique and embroidery, from the living plant. I will be glad to share these designs with anyone who will write me, enclosing a 3-cent stamp.

MRS. F. BESTARD
3203 E. 17th Street
Wichita 14, Kansas

"SUCCULENT PLANTS." Illustrated with View Master. An interesting and authoritative book, by W. Taylor Marshall, on cacti and succulent plants. Here for the first time the reader may see full-color, photographic, Kodachrome illustrations of text material in the true-to-life realism of third dimension. The book chapters are: Succulence in Plants, Parallelism, Fasciation, General Culture, Succulent Plant Names, Fig Marigold Family, Century Plants, Desert Milkweeds, Pineapple Family, Cactus Family, Daisy Family, Orpine Family, Spurge Family, Candlewood, Lily Family. The 20 sterescopic reels which come with it, and are a part of this book, make possible the unusual illustrative method used. As each picture comes into viewing position in the View-Master stereoscope, information relative to the plant shown, appears in the caption window of the viewer. No other projector, screen, or equipment is needed. 140 three-dimension pictures in full color with viewer and cloth bound book—all for $12.00. Postage 50c, foreign 75c.

**RARE BOOK**

We offer a single copy of H. Jacobsen's "Verzeichis der Arten der Gattung Mesembryanthemum" as it appeared in Fedde's Repertorium in 1938. This book contains the most valuable list of genera and species of Mesembryanthemums with their synonyms. Price $25.00 (no covers). Box 101, Pasadena, Calif.

ABBEY GARDEN PRESS

# SPINE CHATS

LADISLAUS CUTAK

Very seldom do I recommend the raising of Prickly Pears as pot plants for the amateur. Although the flat-jointed Opuntias are probably the most common and easiest to procure of all the cacti, they possess those wicked glochids (cushions of tiny spines) which have discouraged many a neophyte from becoming a cactus fan. There are a few species which can be handled without too much bother but it is always a good idea to utilize a pair of ice-cube tongs when handling is necessary.

The Beaver-tail, *Opuntia basilaris,* is one of these and many small ones are used in dish garden culture today. Our plant in this month's discussion gets its name from the shape of its joints which remarkably resemble the hind appendage of the well-known dam-building animal. The joints or pads are usually narrow at the base and broad toward the top, often wrinkled and spineless, although by no means without the small characteristic glochids that may become troublesome. These small brownish glochids are contained in sunken areoles along with some whitish felt. The area around each areole is usually purplish-tinted while the color of the pad varies from gray-green to pale bluish-green. Pads may attain 12 inches in length and 6 inches broad at the widest portion. In early April the edges of the pads become covered with fat buds which burst into exceptionally showy and large flowers. The flowers average 3 inches long and equally as broad when fully expanded. The color of the petals is Rhodamine-Purple (deep rose purple). Inner perianth-segments are somewhat heart-shaped with slightly fringed apical margins and are contained in two series with a total of not more than 20 petals. They are about an inch long. The sepals are half as long or sometimes slightly longer and feature a broad greenish stripe through the middle, terminating in an attenuate tip. The stamens are very sensitive and when disturbed in any manner incline toward the style, resuming their natural position after a few minutes. The filaments are dark purple-red in contrast to the rose purple petals. Anthers are very light yellow or cream-colored. The style is faintly tinged with purple and the white stigma lobes generally number 7. The ovary is about 1½ inches long, tuberculate, and covered with fine pubescence, with conspicuous areoles containing brown silken wool and brownish spicules. The Beaver-tail enjoys quite a range, being found in several counties in Arizona, in the Mohave Desert of California, Utah and Nevada.

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Megathymus is a lepidopterous insect which has long been associated with the genus *Yucca,* but in 1934 it was noted that a certain species of *Agave* served as a food plant for this butterfly. Still later another *Megathymus* was found to feed in the larval stage upon another Agave. Last summer, H. A. Freeman, instructor at the Southern Methodist University, received a research grant to work out the life histories of Agave feeders in Arizona. He discovered *Megathymus neumoegeni* associated with *Agave Palmeri* and *A. chrysantha; Megathymus evansii* with *Agave Parryi; Megathymus polingi* with *Agave Palmeri; Megathymus mariae* with *Agave lecheguilla* and *Megathymus smithi* with *Agave variegata.* The female Megathymus usually flips eggs into the Agave plant with the result that they usually lodge at the base of the outer first or second row of leaves. Upon hatching the larvae burrow tunnels into the leaves in order to feed. The presence of Megathymus larvae is detected by looking for the brown doors which they build over the entrance to the internal tunnels. The Megathymus larvae that feed on Yuccas usually emerge in the spring, while those associated with Agave emerge in late summer or fall. For further information see *Field & Laboratory,* January, 1951.

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Mexican fibre is one of the most important brush-making fibres and the nearest substitute to bristle of all the vegetable fibres. Originally it was used as a stuffing for sailor's mattresses, and is still used to a certain extent, when curled, as an unholstery material. English rope-makers regarded it as too stiff for ropes, and so eventually it found its way to the brush-makers. The suitability of the fibre for scrubbing brushes and nail brushes which could be produced much more cheaply than those made of any other material led to an immediate demand, and the fibre soon became an established material for scrubbing, nail and whitewash brushes. The introduction of Mexican fibre was a great step forward in the brush industry, since it enabled brushes to be made cheaply and caused a great increase in demand. Mexican fibre is usually obtained from the leaves of *Agave lecheguilla,* which grows in poor loose soil rich in limestone. The fibre is obtained from the central spindle-shaped heart leaves when the plant is five to six years old. The fibre is removed from the leaf by pulling it under a blunt knife, under pressure, in much the same way as Manila hemp is obtained. After removal from the leaf the fibre is further cleaned and freed of extraneous matter by beating with the knife, and then dried in the sun, before being taken by the collectors to the packing stations. Mexican fibre is one of the most useful of brush-making materials. It is easily bleached and can be dyed almost any color to resemble bristle. These notes are extracted from R. H. Kirby's excellent article, "Brush-Making Fibres" in Economic Botany, 4:243-253, July-September, 1950.

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